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Riding the waves of disruption

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Foreword

Rapid digital and technological developments have reshaped and transformed our jobs and the way we work. Regardless of the sectors that we are in, these disruptive changes will continue to have a considerable and relentless impact on both businesses and working professionals.

Undoubtedly, technology is one of the most prominent disruptor of our times. Comparing the impact that technology has on our lives to that five years ago, we see a few key changes – the speed at which technology evolves is faster, the number of technological innovations has increased and the extent of change that technology brings about is far greater.

While technology changes the way we work, it is crucial to bear in mind that it is neutral. What this means is that we must leverage technology at work and learn to use it to our advantage. Thus, we – as business leaders and working professionals – must be ready for such disruptions and the speed at which disruptions is taking place. To do so and to remain relevant and maintain competitiveness, we will need to continuously upskill, reskill and cross-skill.

While having deep sectoral knowledge and core competencies are important, they are not sufficient; it needs to be complemented with adjacent skillsets. In a rapidly evolving environment, businesses, business leaders and working professionals will need to constantly reinvent themselves and adopt a mindset of lifelong learning to keep up with the changes.

On this note, I am glad to hear that CPA Australia has collaborated with NTUC's U Associate and e2i (Employment and Employability Institute) on two sectoral programmes, namely, "Finance Operations Development Programme" and "Your Business & Finance Advantage", to help future-proof our accountancy professionals. This is the very thing that we want to do to help them ride the waves of disruptions.

We are encouraged to have the support of CPA Australia and look forward to even more of such partnerships to better help our working people.

Chan Chun Sing
Secretary-General of the National Trades Union Congress &
Minister in the Prime Minister's Office

Preface

Digital disruption is a hot topic these days. In his August 2016 National Day Rally speech, Singapore Prime Minister described disruption as the "defining challenge" for the local economy now and in the foreseeable future. The news agenda is often dominated by how companies and industries are being disrupted by new and digitally-savvy entrants. There are many gravestone stories of companies that did not respond quickly enough to digital disruption. But it is certainly not all doom and gloom for incumbents who must look for ways to survive and even thrive in the new digital world.

For organisations, the need to respond to disruption, digital or otherwise, has never been greater – from re-defining the way they interact with customers to delivering services and products. While disruption presents significant opportunities for businesses, the biggest risk is not taking any action at all.

A radical industry shift might be required in some cases and spending time thinking about this is critical. Organisations and individuals can shield themselves from disruption by building the skills and agility to move and adapt quickly, protecting their future in the short and long term.

Against this backdrop, CPA Australia and Singapore Management University School of Accountancy believe there is merit in contributing to the eco-system by equipping corporate decision makers with the necessary insights to understand how to anticipate and respond to digital disruption. Hence, this toolkit aims at accounting and finance professionals, directors and senior management in SMEs, as well as business advisors at large.

This endeavour brings together various stakeholders and subject matter experts from accounting, business and academia. We are grateful for the generosity of time and effort by our contributors from Deloitte, EY, KPMG and PwC in providing their valuable insights and views in this publication. We also thank the staff of CPA Australia and SMU who have supported the production of this toolkit.

We hope you will find this an important resource as your organisations grapple with the fast-moving developments caused by digital disruption.

Yeoh Oon Jin FCPA (Aust.)
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CPA Australia

Prof Cheng Qiang FCPA (Aust.)
Dean, School of Accountancy
Singapore Management University

Prologue

The era of disruption is upon us and it is important that we develop the skills and expertise needed to face this challenge and stay competitive.

Even as old models are disrupted and new models emerge, opportunities will remain. In this respect, one of the biggest challenges in seizing the opportunities presented lies in how businesses and employees respond in the face of disruption. Certainly, businesses must remain nimble, and be able to anticipate and prepare for disruption. At the same time, employees must view learning as a lifelong journey and seek to continually develop deeper skills needed to navigate the disruption that is to come.

As editors of this book, we have assembled authors with a diverse range of expertise to address important issues in disruption. These include how we can seek to develop new capabilities to meet the challenges of disruption, how we can leverage digitalisation to enable innovation, how to cultivate entrepreneurship and a disruptive culture, how a firm can set about building transformational business models, and how we should groom the next generation of finance professionals who can thrive amidst disruption.

It is our hope that the issues examined in this book will contribute to academic and professional literature, and bring forth robust discussion on how we can rise to the challenges that disruption will bring.

This book is organised as follows.

Chapter 1 introduces the concept of digital disruption and discusses the paradox where digital technologies can enable productivity and possibly profitability but, at the same time, also undermine a company's ability to stay in business. The chapter also suggests four necessary mindset shifts that companies should make in today's digital era: 'Disrupt or be Disrupted', 'Redefine the Business Strategy', 'Establish an Agile and Experimentation Mindset' and 'Be Data-driven and Exploit Business Areas that cannot be Digitised'.

Chapters 2 to 5 examine how firms can thrive in the digital age by riding the waves of disruption.

Chapter 2 looks at how firms can develop new capabilities that will enable them to do well in the fast changing digital economy. It provides a six-step blueprint that describes practical solutions that firms can take to help them towards digital success. It also highlights how this blueprint should be complemented by a supportive culture and an innovation acceleration process to promote the development of new ideas.

Chapter 3 explains how data is an enabler in the innovation process in today's digital and data-intensive economy, and can make the difference between a business' success or failure. It highlights the importance of firms having an innovation strategy and examines various ways that organisations can encourage innovation.

In **Chapter 4**, you will learn how a firm can cultivate entrepreneurship and a disruptive culture. It provides five practical strategies that organisations can implement to foster internal innovation. It also acknowledges that sustaining a culture of innovation is often the most challenging part of a transformation programme, and proposes five ways that companies can set in motion behavioural changes that sustain a culture of challenging conventional organisational thinking.

Chapter 5 examines how firms can build transformational business models. It identifies nine patterns of disruption that can pose specific challenges to incumbents. It also highlights how the foremost thought leadership on business transformation draws on the idea of minimum viable products, and describes five key principles that firms should abide by to ensure the successful execution of minimum viable transformations.

Chapter 6 looks at the opportunities for organisations to capitalise on disruption and the risks of doing nothing. We speak with three corporate leaders for their thoughts on how their organisations are coping with potential disruption to their business. They also share insights on how thinking out of the box has helped their companies thrive in the midst of uncertainty and continue to leverage disruptive forces to their business and industry.

Chapter 7 discusses SMU-X, an alternative experiential learning approach at the Singapore Management University. This can be used to supplement traditional teaching methods as well as internships to bridge the gap between academic and industry, and prepare students to be "future-ready" for the workplace.

Finally, **Chapter 8** provides a list of useful resources that companies and employees can use to build new capabilities, promote entrepreneurship, and develop skills to help them better handle an era of disruption.

We are pleased to be part of this collaboration between CPA Australia and SMU School of Accountancy. We thank the contributing authors for supporting this project, and hope that you, the reader, find this collection of articles a practical resource.

CHAPTER 1

Navigating the Digital Disruption Paradox

Gary Pan, Seow Poh Sun, Clarence Goh,
Singapore Management University

Digital disruption is the change that occurs when new digital technologies and business models impact the value proposition of existing business. Digital disruption has created a paradox – while digital technologies enable productivity and possibly profitability, they may also undermine a company's ability to stay in business. Typically, disruptors seek to tighten their grip upon the market. From incumbents' viewpoint, these disruptors are both competitors and partners. For instance in bank lending, financial technology companies (fintechs) are usually viewed as partners. Banks regard them as a way of channeling business their way. However, in payment, fintechs are viewed as competitors. Payment has always been seen as lucrative for banks and many fintechs are keen to disrupt it by facilitating payments at a lower cost. Fintechs are therefore becoming a threat to this specific revenue stream for banks.

The impact of digital technologies can come in many forms and may disrupt businesses and industries. A good example is Uber's On-demand model whose value propositions center on convenience and immediacy that offer instant access to customers. Another example is Airbnb's Access-over-Ownership model that provides access to goods and services previously available only to owners, but now offers the opportunity to "rent" homes, cars, and even clothes, rather than "buy" them.

According to a survey of more than 2,000 C-level executives on the impacts, structures, barriers and enablers of digital technologies[1], industries that are significantly disrupted are likely to face two major challenges. First, low barriers of entry into these industries which often lead to severe competition. Second, such industries typically have large legacy business models with embedded cultural and organisational challenges when it comes to changing at the pace required. Therefore, keeping up with the pace of change is key to corporate survival in this digital era.

An infamous example of how digital technology has decimated companies that could not keep up is Kodak. In its heyday in the 1990s, Kodak was the market leader in cameras and films. In 1996, it had a market valuation of US$28 billion and 140,000 employees. Yet in 2012, Kodak filed for bankruptcy protection. This rapid decline of Kodak is surprising to many as the company invented the digital camera. But over time, the company was focused mainly on its film development and photo printing business. Kodak had missed the boat when digital cameras were incorporated into mobile phones as it reacted too slowly in the digital revolution.

Kodak's case offers an important lesson. In this digital era, companies need to act swiftly to develop a digital strategy, shift organisational structures and remove the barriers that are keeping the organisation from maximising the impact of new digital technologies. After all, if planned and executed well, there is great opportunity for digital technologies to reframe business and industry models in a significant manner. This may create positive value for consumers, companies and communities.

Responding to digital disruption in Singapore

At the National Day Rally 2016, Singapore's Prime Minister Lee Hsien Loong identified digital disruption as the "defining challenge" facing Singapore's growth. According to PM Lee, "Old models are not working; new models are coming thick and fast; the disruption will happen over and over again, relentlessly and Singapore is having to adjust and to keep up because of technology and globalisation." He urged the nation to embrace change to continue progress and to keep a positive mindset as disruption may also bring new jobs.

There have been indications that Singapore is responding well to digital disruption. A study conducted by The Economist Intelligence Unit (EIU)[2] suggested that Singapore has emerged tops among Asian countries for its ability to transform itself amid digital disruptions. The inaugural Asian Digital Transformation Index ranks Singapore ahead of economies such as South Korea, Japan, Taiwan and Hong Kong. The study is based on 20 wide-ranging indicators, including 4G network coverage, broadband affordability, quality of mathematics and science education, and the ease of accessing government data online. While it seems Singapore has done well in responding to digital disruption so far, Singapore companies can certainly do better and more.

According to Telstra's report[3], there are still some large companies in Singapore that do not take digital disruption seriously. 69% of individuals surveyed said that their companies are exposed to digital disruption and only 8% of respondents felt that their organisation is very exposed to digital disruption. Furthermore, less than 50% of respondents considered their organisation actively trying to disrupt their competitors by digitising their businesses.

To survive in the digital age, companies require significant mindset shifts. Once a company is able to shift its mindset, it is on its way to thriving from just surviving. The capability to disrupt is quickly becoming a competitive advantage for companies. Here, we suggest four necessary mindset shifts in today's digital era: *'Disrupt or be Disrupted', 'Redefine the Business Strategy', 'Establish an Agile and Experimentation Mindset' and 'Be Data-driven and Exploit Business Areas that cannot be Digitised'*.

Mindset Shift #1: Disrupt or be disrupted

The major cause of disruption is the rapid advancement of technology, which allows new business models to be introduced at an ever-increasing rate and with rapidly declining costs. Addressing this uncertain environment requires disruptive thinking, a willingness to change and rejecting tried-and-tested ways of creating value. Essentially, companies need to be willing to disrupt themselves before others do it to them. This mindset shift requires overcoming the fear that a new product or channel will cannibalise an existing business. Many companies struggle with legacy assets and productivity gaps in their own operations and therefore find it difficult to overcome the inertia to change. A good example of how a traditional business is embracing digital technologies and transforming its way of doing business is the furniture industry.

In recent years, Singapore's furniture industry has undergone significant transformation. Internet furniture sale platforms have replaced many brick-and-mortar stores. Consumers' behaviours have also changed: small orders and impulse purchases instead of large ticket items, meticulously curated into a home with precision. As a consequence, furniture suppliers have had to react to the change by having production and supply chains that can accommodate volatility in sales behaviours.

In addition, the furniture industry has also adopted virtual reality (VR), augmented reality (AR) and the Internet of Things[4] in delivering sales and customer service. With VR, users can select from numerous furniture and furnishing options to help them design their homes without having to be physically in the space that they are fitting out. This enables retailers to shrink their shopfronts and reduce operating costs. Retailers no longer need to limit their offerings to only what they can physically display in their stores. With AR, customers can experience how their homes look and feel with their chosen furniture even before they pay for them.

With the Internet of Things, furniture pieces can be attached to network connectivity and intelligent devices to monitor health statistics, regulate temperatures for comfort and provide feedback on furniture-use preferences. For example, an office table that monitors an employee's use and wellbeing by adjusting its height at regular intervals to suit his or her optimal ergonomic position may raise productivity and prevent health issues that arise as a result of prolonged sitting. The digital age has seen furniture retailers either moving out of their brick-and-mortar models, or turning their stores into flagship click-and-mortar show rooms.

Mindset Shift #2: Redefine the business strategy

With digital technologies changing the business environment at rapid speed, a fundamental redefinition of business strategy has become a necessity. Revamping business strategy may include venturing into a new market or pushing for major corporate innovation. However, before a company takes any action, it should identify existing strengths and capabilities. This is because while establishing a new business model may side step the challenges and constraints of the disrupted legacy business, it is difficult to redesign an organisation to compete in an entirely new business area. Therefore, emphasising existing strengths and extending internal capabilities will be a good starting point for any digital transformation.

Singapore Post is a good example of a company in the process of refocusing its core business. In an announcement made in July 2016, the company acknowledged that its domestic mail business is a burning platform that is subjected to the forces of digital disruption. Domestic mail business is facing an accelerated decline as corporate Singapore becomes increasingly digital. The company is transforming its business model to build new source of growth by extending its foundation into e-Commerce logistics. According to the company, this is an important and necessary step to ensure Singapore Post remains sustainable. Redefining the business strategy is not just unique to Singapore Post. Other successful examples include Fujifilm which

applied their capability in attaching chemicals to film and made entry into the cosmetics industry and IBM which shifted a large part of their business from hardware to services and consulting.

Mindset Shift #3: Establish an agile and experimentation mindset

To respond to disruption, companies may want to learn from their disruptors and try to emulate the way they think and act. This means companies will have to adapt and embrace an agile and experimental mindset. It is important to create a culture of experimentation where assumptions and iterative concepts are constantly tested, and a mindset that it is alright to experiment and fail. By learning from lessons of failure and applying it to product development, companies can continue to innovate so as to ensure each new version of the product better addresses the needs of customers.

To cultivate such a mindset, creating a right culture is important. Rather than specifying desired outcomes, start with a business benefit the company aspires to deliver and let employees work out the best way of achieving it. The mindset ought to be applied across the business units and be supported by the CEO of the company.

Singapore's banking industry is a good role model in creating and cultivating an agile and experimental mindset. In today's digital age, banks have witnessed an array of new digital solutions and concepts that are coming onto the market. Banks are taking rapid and appropriate actions to innovate and digitise their services. For instance, banks have been primarily dependent on their branches for their interactions with their customers. They now need to delve much more deeply into how that physical distribution network can be integrated into the whole digital transformation process. Some banks are in the process of coming up with a sound strategy to leverage their physical branches and ATMs to enable better digital processes than the fintechs, which do not really have a physical presence.

Some banks, however, have already made significant steps in reducing their physical footprint. They have introduced new customer experiences through launching new brands and digital capabilities. For example, banks are beginning to offer many more services through mobile phones so that phones can be used for services beyond checking bank balances and transferring money. Others are re-thinking their physical networks differently – exploring ways of using a bank branch in a more innovative or value adding manner. After all, it can be seen as an asset their competitors do not have.

Similarly, Monetary Authority of Singapore is embracing new technologies, taking advantage of fintech's potential, and reaching out to tech startups[5]. It is setting up a regulatory sandbox for fintech startups to play in without risking customers' data (and money). In addition, it has launched an innovation lab, 'Looking Glass', to experiment with fintech solutions and provide consultation to startups. The latest notable development is the use of blockchain to enable cross-border payments between major banks. This could be a major step toward legitimising the technology which may bring on board more innovative banking applications.

Mindset Shift #4: Be data-driven and exploit business areas that cannot be digitised

Increasingly, companies are utilising big data, coupled with advanced analytics, to improve customer engagement, optimise business processes and point to new monetisation opportunities. Business insights are gleaned when statistics, predictive analytics and data mining are used to inform business processes and improve performance. Companies can do so by identifying data relevant to key business processes and decomposing each process into its supporting decisions, questions and data sources. The end goal is to have a data-driven company where every person has access to data when they need it so as to make better decisions. Being data-driven is about giving business decision makers the power to explore data independently, even if they are working with big or disparate data sources. They need to

be able to ask questions and receive answers that are based on data before the decision is actually made. A good example of how data has played an important role in its business processes and decision-making is Singapore's real estate industry.

Digitalisation has disrupted the traditional way of doing business and the real estate industry is no exception[6]. For instance, Ohmyhome is a property mobile app created by property agents. Through the app, these property agents reinvented themselves by developing innovative ideas that address the 'inefficiencies' in the market and found new niche markets to tap into. With the app, sellers and buyers can now transact directly with each other on the platform, eliminating the need for a traditional real estate agent. It has made real estate information more readily available to consumers and cut down transaction costs.

Traditional property agents whose business has been disrupted by such apps could focus on business areas that digital technologies cannot address, in order to compete in the market. These underexplored property related areas include the ageing population, physically disabled people and the green industry. For instance, the physically disabled often have specific requirements related to accessibility and other special facilities when looking for a place to stay. Due to the specific nature of these requirements, it is difficult for apps or technology based applications to easily serve these needs, hence creating a niche for traditional real estate agents. As the real estate industry continues to be disrupted by technological advancement, the role of a property agent will evolve. As such, property agents will have to quickly adapt and provide value-add services that are beyond what an app can do.

Conclusion

In this digital age, companies will have to invest in new skills and think hard about how they want to restructure the way they work. That means they will have to become advocates for change and not just passive users of tools and software. The benefits of being digital may be substantial – as indicated by various examples raised in this chapter. However the deep shift from 'looking digital' to 'being digital' is predicated on intentional efforts to employ these new tools in new ways, to develop and deploy the right talents and to drive new management mindsets. Therein lies the challenge of the leaders: to recognise a deep shift is necessary and to start building the foundation for it.

We expect the future to be one of varied and increasingly ambitious disruption in business, driven by continuous technological innovation. This innovation will drive valuable customer insights, enable the development of new products and services, transform systems and processes to dramatically reduce costs, and enable organisations that are ready for it to be increasingly agile and able to respond to digital disruption.

CHAPTER 2

Developing New Capabilities

Greg Unsworth, PwC Singapore

In our fast changing digital economy, innovation and developing new capabilities will be essential. Organisations must be able to innovate and apply advanced technologies to remain competitive, to capture emerging opportunities and potentially even survive in our rapidly changing business landscape. Developing new capabilities is critical for sustainable business performance as organisations seek to enhance product and service offerings, improve efficiency, upgrade technologies and increase their resilience and adaptability.

The nature and complexity of business needs from accounting professionals are also increasingly becoming more complex, multi-competency and multi-geography. All of these changes are happening at an increasing pace, requiring a significantly faster and more coordinated response from the profession. More than ever, an innovative approach towards the development of new capabilities will be required.

Readying for digital success in the world of Industry 4.0

PwC's 2016 Global Industry 4.0 survey points to a profound digital transformation that is underway in the manufacturing industry and it is set to intensify in other industry sectors including the accounting profession. The study, the biggest worldwide survey of its kind, covered over 2,000 participants from nine major industrial sectors and 26 countries.

It found that 33 per cent of respondents rated their companies as digitally advanced today, with that figure higher at 40 per cent in the Asia Pacific region. When asked to look five years ahead, 72 per cent of global respondents said they expected their companies to be highly digitised by 2020.

So what is Industry 4.0?

The Internet of Things, smart sensors, cloud computing, robotics, artificial intelligence – these are just some of the technologies that make up the

Industry 4.0 network. When these technologies are combined, they integrate the physical and virtual worlds, enabling a powerful way of organising operations. This develops into an end-to-end digitisation of physical assets and integration with digital ecosystems.

Industry 4.0 represents the digital journey that organisations are taking to compete in the new world. That journey does not stop with the digitisation of processes but extends to product and service offerings, as well as business models and customer engagement. Industry 4.0 is the essence of digital disruption for business.

Industry 4.0 - the technologies

What's their impact on the economy?

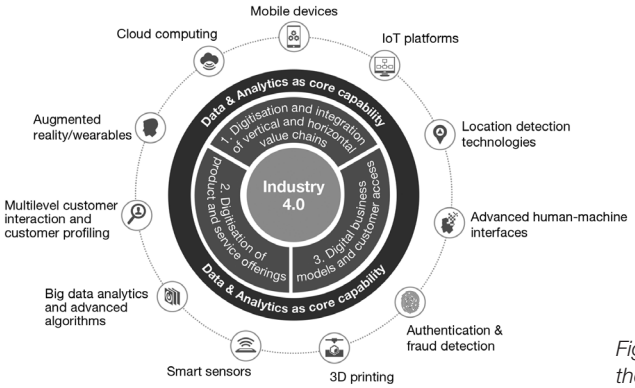


Figure 1: Industry 4.0 – the technologies

- New levels of innovation and customer centricity
- Rapid disruption of business models
- Polarisation of workforce:
  - *automation puts downward pressure on wages of low skilled worker*
  - *impinges on employment prospects of middle skilled workers*
  - *potential returns to highly skilled and more adaptable workers grow*
- Labour-intensive firms can boots profit margins through automation
- Organisations can act as intermediaries hit hard
- Flexible economies stand to gain most

What does this mean for the accounting profession?

Just as all industries will continue to be disrupted by emerging technologies and new business models, so will the accounting profession. This provides both implications and opportunities for finance professionals. Specific examples include the following:

1) Automation – A higher degree of automation of processes, whereby transactional data flows into billing, enterprise resource planning and accounting systems with less human intervention, altering the way processing is carried out. Benefits of this may include greater efficiencies, productivity and lower cost.

2) Real time monitoring – New business intelligence tools will provide more real-time visibility into transactions, controls and systems. Cloud platforms will further facilitate real-time reporting. This will provide greater visibility into business and financial risk, making for quicker assessment and remediation, enabling real-time interactions with management. This will likely increase the need for continuous auditing and for accounting standard setters to "keep up" with the needs of users in the world of real time reporting.

Implications for the future of reporting standards?

Mind versus machine

- Combination of data & analytics and human intuition adds up to judgement that is more capable and effective
- What is the right mix?
- How will standard setters deal with "real-time" reporting?

3) Data and analytics – Digitisation creates huge amount of data which can provide real-time insights to companies and help anticipate future issues. There will be real challenges for the profession in ensuring data quality, governance, security and privacy.

4) Talent – Alarmingly to many, automation will cause some displacement and redundancies. It will be essential for the profession to upskill, become more tech savvy, and conversant with data. Accountants and IT professionals will need to work together to determine what kind of data to collect and how best to collect it. Accounting professionals will increasingly be expected to advise clients on redesign of systems and need to become data specialists who can help clients use critical analysis to increase their returns on investment and grow their business.

What are the keys to successfully developing new capabilities?

While the rewards from effective development of capabilities and use of new technologies may potentially be great, this requires major shifts in organisational practices. These changes include new approaches to data management and compliance, as well as development of IT infrastructure. However, the biggest obstacle to the successful development of capability is not technology, but people.

Survey participants of the Industry 4.0 study cited the lack of a digital culture as the top challenge facing companies trying to implement effective digital coverage. Whether an organisation succeeds in rolling out digital programs largely depends on its Digital IQ, or how well it captures the value expected from its technology investments. And that depends on how well its leaders define, lead and communicate the “digital” vision. This is where finance professionals can step in to play a major role to help organisations adapt and even “thrive” in a digital world.

Furthermore, for digital ecosystems to function effectively, digital trust is paramount. With interconnected systems and multiple touchpoints for data collection and exchange, there are plenty of potential points of entry for an attacker to exploit. These need to be secure in order for all parties involved to have trust in systems. Ensuring digital trust is a complicated challenge but it can be realised if the three pillars of transparency, legitimacy and effectiveness are developed. Once again, the profession can play a key role in helping organisations address these objectives.

To move forward, developing digital capabilities is vital for all organisations. This takes time and effort, and there are six practical steps any company can take.

Six step blueprint for digital success

1. Map out your digital strategy

An effective digital strategy will identify key steps any organisation should take on the journey towards becoming a fully digital enterprise. It is important to evaluate the company's current digital maturity and develop a plan to further enhance digital capabilities. This strategy will help to provide the direction for future development and investment in technology and capability.

2. Create pilot projects

Establish proof of concepts and demonstrate business value through pilot projects for finance teams. Not every project will succeed but they will help an organisation learn what works best for them. Early wins also help gain buy-in from the rest of the organisation and assist in securing support for further development and investment.

3. Define the capabilities needed

With the lessons learned from the pilots, map out in detail what capabilities are needed. Considerations should focus on four strategic dimensions: organisation, people, process and technology. Consider how to structure the organisation to best inspire innovation and collaboration. Develop strategies for attracting people with the right digital skills. Improve processes to ensure information security and digital trust in a collaborative environment.

4. Become a data virtuoso

Data is at the heart of digital business so a successful roll-out depends on the organisations' ability to identify and gather the right data, deploy it for the right purposes, and effectively analyse it. An effective data analytics strategy requires focusing on predictive analytics and forecasting, prescriptive analytics, business driven decision-making and automated feedback to the organisation. It should also enable greater connectivity for employees.

5. Transform into a digital enterprise

Achieving the full potential will require a transformation of the organisation's practices and the attributes underlying them. Without the right digital culture, the best talent will not want to stay. The right tone needs to be set from the top, with clear leadership, commitment and vision from the C-suite. Employees should also be encouraged to think and act like technologically adept natives, willing to experiment, learn new ways of operating and adapt everyday processes accordingly.

6. Actively plan an ecosystem approach

Digital plans need initiatives to extend far wider than horizontal and vertical integration within the organisation. To achieve breakthrough performance, the organisation has to understand consumer needs and use digital technologies to create and deliver value to customers in an integrated, innovative way. If there is difficulty developing a complete offering internally, explore partnerships, align with platforms or consider acquisitions.

Are you ready for the revolution?

Industry 4.0 is already here. And like the three industrial revolutions before it, this one is set to rapidly transform the business world and wider society. While the steps towards this digital revolution may seem daunting, Industry 4.0 will be a huge boon to companies that fully understand what gains it can bring for them. Failure to take adequate steps now, however, may have significant consequences for some organisations.

The importance of culture

Whilst a blueprint for digital success will help, the importance of instilling a culture of innovation cannot be underestimated. As the accounting profession often operates in a highly regulated environment, the culture of finance teams may often be more role and achievement-oriented. The achievement-oriented culture is focused on realising a set purpose and goals, with limited room for failure. Consequently, a risk-averse culture may be pervasive in some cases.

Whilst this culture drives commitment to excellence, timely delivery of quality services, and improves efficiency, it can inhibit innovation. Furthermore, this culture does not empower people to take risks and try new things as it is often compliance-oriented. To develop such an innovative culture, a comprehensive program that promotes innovative behaviours in a holistic fashion across the organisation may be required. This should start with the human capital function and organisational talent development programs.

Human capital and talent management

Human capital processes and policies for any organisation should be evolved to include core competencies for innovation. This should be supported by training curriculums, tools and methodologies. The following are some of the innovation core competencies that should be included in competency frameworks:

- Creativity (generating ideas, critical thinking)
- Enterprising (identifying problems, seeking improvement, independent thinking)
- Integrating perspectives (openness to ideas, seeking information from other spheres)
- Managing change (challenging status quo, intelligent risk taking)

Talent management programs should be designed to recognise future leaders who think differently and are able to bring innovative mind-sets to solve problems. In addition, innovation criteria, projects, tasks and activities should be embedded into recruitment as well as talent selection and development programs for finance professionals.

To truly excel at innovation any organisational culture should reward "fast failure" – a culture where employees understand that to change or to create something new means taking risks. A culture where employees know that innovation can certainly fail and mistakes can happen, but they learn from the mistakes and apply that learning for future benefits. Aiming high and having a big, bold idea is not frowned upon, but encouraged. A culture in which the leaders think the biggest mistake is not trying, not experimenting, and not taking a risk.

Overall, the development of such a culture and enablement of people will help the profession to prosper and ensure the successful development of new capabilities. This should also be supported by innovation acceleration processes to help ensure good ideas are captured, incubated and implemented for the benefit of the organisation. The following is an example of a framework developed to support innovation programs for an organisation. This should be tailored and developed to fit the needs of any specific digital strategy.

An example of an innovation acceleration framework

Design

- Bottom-up driven process
- Bottom-up submissions from staff

Discover

- Central innovation team to set out new ideas
- Leadership aggregates submissions and priorities them based on potential
- Leadership decides on top ideas with input from specialists and advise
- Top ideas are selected for development based on potential and alignment with organisational objectives

Develop

- Central incubation team established to develop and nurture new capabilities
- For ideas submitted, develop and incubate identified solutions using the core central innovation team
- Utilise appropriate SME “team” and resources as required
- Identified skills/technology/partnerships required to implement
- Develop capabilities rolled out for the organisation

Distribute

- Disseminate solutions to business units with suggested implementation plans
- Lead implementation of new services and capabilities

Implement

- Develop roll-out plans to relevant business units including finance team
- Pilot where necessary and build on success
- Use innovation and talent development progress against objective

Monitor

- Report on results and provide feedback on what is working well/ or not working well for the service offerings so it can be disseminated to other business units
- Track progress and re-evaluate priorities based on experience

The world is changing and the digital revolution will only increase in pace. It is vital for the profession to stay relevant and evolve as well. The only way to do this effectively is to continue to develop new capabilities.

This blueprint for digital success includes practical steps that any organisation can take. It is important that this is supported by the right supportive culture and an innovation acceleration process to promote the development of new ideas. Although the steps required may seem daunting at first, it is only by embracing this “digital wave” that the profession can ensure it plays an even bigger and more relevant role in future.

CHAPTER 3

Leveraging Innovation and Digital

Lyon Poh, KPMG in Singapore

Technology and innovation have exposed individuals and businesses to a whole new world of opportunities. In fact, disruptive technologies have levelled the playing field for businesses to the point that one might say, every business has an equal chance to thrive if they truly embrace digital innovation.

Indeed, the rapid technological changes we have seen in the last few years have had a revolutionary impact on businesses. Besides creating different channels of reaching out to customers and new ways of doing business, it has also provided innovative entrants opportunities to enter and disrupt traditionally stable markets, thereby capturing a share of the market in the process.

Even more critically, we are on the cusp of the Fourth Industrial Revolution[7] which will introduce new ways that humans and machines connect and relate. Industry 4.0 involves the combination of human-machine intelligence with modern technologies, most of which are getting faster and less expensive to deliver. Intelligent machines will transform everything we know.

While many organisations are aware of evolving digital technologies and solutions, some are slow to address or fully embrace these technologies. This results in a growing disconnect between technologies' potential and their adoption across firms and industries. There is also a widespread miscalculation of the magnitude of transformational opportunity digitisation potentially provides. Yet, in a high-cost labour market like Singapore, companies, especially small-medium-enterprises (SMEs), could benefit extensively by leveraging digital solutions to uplift operational efficiency or scale their businesses.

Speed to market, and being agile in adopting new technologies is key to staying competitive. At the same time, companies need to re-evaluate their innovation efforts and how valuable new business models or monetisation opportunities may be.

Innovation is no longer a buzzword. The reality is that customers, investors and employees demand innovation. More than ever, innovation is a critical element in fuelling business growth, driving productivity and maintaining market share. In an increasingly volatile, uncertain, complex, and ambiguous (VUCA) environment, businesses that innovate effectively will have a greater opportunity to increase their profitability and productivity, and develop a sustainable competitive advantage. They are more likely to employ, export and generate new products and services.

What is innovation?

Each individual has a different concept of what innovation is. Getting everyone on the same page about what innovation really is (and isn't) can help employees to identify the changes required in order to build a strong innovation capability in the organisation. In fact, each company should have a different definition of innovation that fit their own vision, mission, strategy and goals.

Types of innovation

Innovation is a diverse activity and comes in a few forms:

Disruptive or radical innovation is one that has a significant impact on a market and on the economic activity of firms in that market. This may come in the form of new entrants or new technologies.

An example is Airbnb. Its founders made use of platform technology to enable the exchange between consumers (travellers) and suppliers (homeowners). Most importantly, the company does not own or manage any physical assets. Airbnb managed to craft a completely new business model that challenged the traditional economics of the hotel business.

Incumbents can also lead radical industry change. DBS is an example of a traditional player actively leveraging technology and adopting a human-centred design approach to enhance banking experience. Besides introducing apps that make banking more convenient, it is also actively supporting startups and entrepreneurs through its accelerator programme held in partnership with startup group NEST. By embracing disruption, the bank has emerged stronger. It was named the world's best digital bank at the prestigious Euromoney Awards for Excellence in 2016.

Disruptive innovations help companies leapfrog competitors by creating new technologies, products and services and ultimately, new markets. However, the significance of incremental innovation must not be misjudged either.

Incremental innovation helps companies to stay relevant and competitive in the market. Such innovation efforts focus on an existing product or service and makes upgrades and small improvements as the company sees fit.

One example is The Coca-Cola Company which relies on incremental innovation to evolve its brand, create line extensions, and tap into new trends. Incremental innovation has enabled the 130-year old beverage company to stay relevant even today.

Gmail, the internet mail service by Google, is an example of a product which has benefitted from incremental innovation. At launch, it had a limited feature set but excelled in its clean, easy to use user interface. Over time Google released more features and made the service better, faster, and easier to use.

Incremental innovation is about making small changes such as cost cutting or feature improvements in existing products or services. Compared to radical innovation, it is not as risky. Most importantly, incremental innovation helps companies preserve the equilibrium in an ever-changing environment.

Data as enablers and digital transformation

Data is an enabler in the innovation process. In today's digital and data-intensive economy, effective management and use of data can make all the difference between a business's success and failure.

Internet connectivity has enabled firms to use software, sensors, machine learning and other technologies to gather and analyse data from physical objects or from datasets. By itself, data has no real value. However, used in the right context, it can reshape the world and create value. With effective data analytics (and cheaper processing power), it becomes possible to understand and make meaningful interpretations of the massive data that the world has been producing. Companies can make their manufacturing and production processes more efficient. Data can be used to gain insights into customers' preferences, thus making marketing efforts targeted and cost-effective.

In most industries, established competitors and new entrants alike have been leveraging on data-driven strategies to innovate, compete, and capture value from deep and up-to-real-time information.

Business model innovation

Being truly innovative is not just about creating better digital-enabled products based on insights from data. Companies need to evolve with the market and as they do so, develop new products and services, different goals to reach new clients and markets. Transformation comes into play when companies fail to evolve in the digital age. Like business transformation, digital transformation is about finding and implementing a new business model successfully.

Netflix is an example of how a company evolved, adapted and survived digital disruption. Founded as an online DVD rental service in 1997, the company has since adjusted their business model over the years according to consumer changing tastes. It is now a dominant internet television service with 94 million users globally[8] and streams more than 100 original series and films.

The company managed to redefine TV-watching experience and even television production. Consumers no longer watch a film or series at a given time slot, but stream them whenever they desire. A high-speed internet connection is now much more critical than a coaxial cable.

On seeing how content distribution has become commoditised, Netflix started positioning itself as a content creator in 2012. To cater to the diverse tastes of its global audience, Netflix leveraged their copious amounts of data collected over two decades since its inception to understand their consumers' behaviours. The data collected ranges from the types and numbers of devices members watch on to their viewing habits (what did they watch right before and after). Each piece of behavioural information is combined into an algorithm that picks out the top 40 titles for each user, based on 75,000 different genres.

Without embracing the new business models that the disruptive changes opened up, Netflix would not have stayed relevant. Kodak is the often cited example of how a business can fail to effectively innovate and respond to disruptive technology. It was once a global powerhouse of technology and innovation. It was the original developer of the digital camera, invested in the technology, and even understood that pictures taken would be shared online. However, they did not see online photo sharing as the new business, instead of just a way of expanding the printing business.[9]

Digital transformation is the intensity of digital initiatives in a corporation to adapt to the digital age. And today's innovation culture goes beyond just digital transformation. Disrupters with nimble, cost-effective business models and innovations that are customer-focused and technology-led will continue to threaten companies.

How companies can innovate

Changing the business, bringing new products to market and developing new business models require commitment from the organisation as a whole. For businesses to thrive in today's age of disruption, innovation must become part of the organisational DNA to truly embrace innovation.

Companies can first start by defining what innovation means to their organisations. In largely commoditised industries, this might just be finding better, faster, more efficient ways of doing business. In others, it might mean focusing not only on making existing products and services incrementally better, but also on developing game-changing technologies or business models that can deliver products or services customers did not know they needed or never imagined they could afford.

With a clear definition, companies can then develop an innovation strategy which, according to Harvard Business School professor Gary Pisano, is "a commitment to a set of coherent, mutually reinforcing policies or behaviours aimed at achieving a specific competitive goal". An innovation strategy helps to align employees within an organisation to the same goal, clarifies objectives and priorities, and focuses efforts around these goals.[10] It also governs how companies can attain their innovation goals.

Different ways of innovating

Where innovative technologies or business models offer the potential for growth, companies must decide whether to develop them organically in-house or inorganically via a merger, acquisition, or partnership. The decision process often starts with determining which factors are likely to drive growth in the new business or market, and assessing the potential value of the opportunity. Companies also need to assess their own competencies and assets to see whether they are well-positioned to benefit from the opportunity organically.

Companies may choose to set up a **dedicated innovation team** that is often tasked with driving an innovative culture internally and stimulating the influx of external innovation. To bolster their internal innovation capabilities, companies may even opt to carve out a segment of their R&D resources to act as a startup within the company, where they may wind up disrupting their own industry. However, innovation departments often struggle to achieve their objective, both internally and externally, and much of their time and effort is spent on gaining legitimacy within their own organisation.

In some KPMG offices, there is a programme of internal "Innovation Challenges" where diverse teams compete to devise breakthrough solutions to clients' most pressing business challenges. Winning ideas come from any part of the organisation, receive central funding, are nurtured by experienced mentors, and are scaled and deployed across the business.

Intrapreneurs are another important source of innovation. An intrapreneur is an employee who has been allowed to exercise some independent entrepreneurial initiative. These intrapreneurs are often passionate about solving a problem and act as a driver of innovation.

Companies can consider giving time to staff to pursue personal projects that relate to the business. By allowing employees to unleash their inner "entrepreneurial spirit", both employers and employees alike can benefit. In the future, organisations are expected to allow its employees to innovate, exercise creative thought and contribute to the shape of the business.

Companies without internal resources to build the capability, technology or business model can consider **funding** those disruptive capabilities by investing in them, or simply **collaborating** with a disrupter to co-opt their technology or business model. Striking a path for innovation is about leveraging wins and experiences to create new propositions and approaches to delight customers and create value. Inorganic growth makes sense if

companies are not positioned to go it alone, or if a market is evolving so rapidly that a fast response is critical.

There is an increase in collaboration between startups and corporates to innovate and provide more meaningful products and services to customers. However, a collaboration between a startup and a corporate company only works if there is also a strategic match.

External collaboration also makes it easier for small- and mid-size businesses to keep up with larger companies. While large companies are generally more protective of their intellectual property, entrepreneurial companies and startups do not have the same barriers or resistance and are more open to collaborating with other parties.

KPMG Singapore's Digital Village connects firms that are looking to innovate as well as potential investors, with startups and R&D houses to "turn innovative ideas into practical solutions". It is a collaborative ecosystem of innovators, investors, and corporates innovating and reaping its rewards together. It helps startups to accelerate development and grow to the next stage, and equips corporates with the latest innovation technology.

Collaboration can take the form of joint ventures, licensing arrangements or informal networks of customers, inventors, business partners and universities. P&G has built a billion dollar business with its Febreze brand through many open innovation initiatives, such as licensing the Febreze brand name and technology to Bissell for inclusion in a line of successful vacuum bags and filters.[11]

This strategy around partnerships and alliances is a recognition that taking full advantage of new technology is difficult to achieve alone. Organisations can work towards creating a network of alliance partners and joint ventures to bring value and accelerate growth.

Crowdsourcing, innovation challenges and co-creation models allow companies to connect directly with customers, innovators and employees to develop new ideas. Regardless of the approach, companies need to evaluate which projects to make substantial investments into. Radical projects may provide a return on investment in the long run. However, at times, these innovations may prove a bad fit in the organisation or disrupt the current product offerings. Companies need to accept that the return on these investments is unpredictable, as it is hard to estimate the likelihood of success.

Companies need to be mindful that they may not always succeed with the opportunity, at least initially, simply because the trend they are responding to will continue to evolve. It is critical to remain agile, and to adapt the scale of investments to market forces.

Although many associate innovation with new technologies, forward thinking companies put the same emphasis on social change such as demographic shifts, evolving buyer behaviours, and the communication preferences of millennials. These are insights derived from ethnographic research that analyses human behaviour. Corresponding innovations – new products, services, channels, or even business models – are brought to life through human-centred design thinking.

Approach

The objective of innovation should be to drive growth by delighting customers, either through improved efficiency, more customer-centric products and services or through new channels and approaches. By focusing on people and process, being agile and constantly revisiting solutions, companies

can identify and solve the right problems, get to market quickly, and drive business growth. This thinking – sometimes referred to as **Design Thinking** – focuses on outcomes and problem-solving. It helps companies to adapt to the fast pace of innovation, understand the impact of new technologies, and introduce novel business models to reap the benefits.

A classic story illustrates how design thinking can solve every day problems. When tenants at a busy office building in New York complained about long waiting time and poor elevator service provided, the building management solved the problem simply by installing mirrors at the lift lobbies. This low-cost solution (compared to installing new lifts) did not decrease the waiting time for elevators, but it did give tenants something pleasant to do while waiting.

In fact, according to a 2014 assessment by Design Management, companies such as Apple, IBM and Whirlpool have outperformed the S&P 500 over the past 10 years by an extraordinary 219%[12]. The common winning factor is their emphasis on design and design-thinking. Design thinking at the core of strategy development and organisational change creates a culture where everyone does real thinking on good solutions to solve the challenges.

Figure 1: Four steps that organisations can take today to thrive in the face of these market shifts (Source: KPMG, "Thriving in a Digital World")

Successful innovation lies not just in generating ideas. It requires building an innovative culture with effective execution. This needs to be supported by a well-designed process to ensure the right ideas are uncovered and successfully brought to market.

Tone from the top

The most resilient companies foster a pervasive culture of innovation at all levels of the organisation – one that values risk-taking, embraces experimentation and considers failure an inevitable part of thinking boldly. Leadership from the C-suite is always important to driving change, and innovation is no exception. The reality is that innovation is unlikely to succeed if not managed effectively.

CEOs need to ensure that everyone, regardless of title understands the innovation imperative. They need to know that everyone is expected to be on the lookout for innovations that will improve the business, and that it's safe to experiment and fail, but fail fast.

CEOs who strive to foster cultures of innovation may want to keep the following principles in mind – principles that underscore how we harness innovation at KPMG:

- **Have a long-term vision and a holistic, enterprise-wide strategy around innovation**, with mechanisms in place that allow you to activate rapidly when disruptive opportunities arise.
- **Build a capability to sense weak signals of change before they turn into major trends**. Economic, political, demographic, social and technology issues can emerge quickly and upend the best-laid plans.
- **Craft an agile business model that regularly rebalances your portfolio of innovative ideas**, knowing when to build, buy or ally to implement them.
- **Redirect your leadership and full organisation to make innovation a core skill**. Set up processes through which your people can develop as innovators as well as be accountable for their contributions.

They should also help employees feel comfortable with innovation. This means motivating employees to pursue new ideas, technologies, and business models, and making it acceptable to fail fast in the name of finding a true solution. By creating the right environment, and putting in place the right processes for searching out and spotting disruptive innovation when it arises, CEOs can get a headstart on defending their turf under threat and ferreting out opportunities to employ disruptive innovation themselves, pre-empting would-be disrupters.

The other C-suite executives are also allies to the innovation effort. CFOs can contribute to an innovation culture by identifying metrics for measuring success or failure, clearly defining the organisation's tolerance for risk, and finding creative ways to fund innovation initiatives. CIOs and CTOs can help employees understand how they can use data, analytics, and cognitive computing to spot emerging trends and assess their disruptive potential. It's critical for the C-suite executives to make innovation a priority in their agendas.

In driving the innovation agenda, C-suite executives should encourage researchers and business unit leaders to pursue a balance of long-term and short-term projects. Some should be incremental and close to the company's core operations, designed to maintain competitiveness. Others should look further out, aimed at engaging new customers or inventing additional things to sell to current customers. Still others should be step-out opportunities where the company is designing new business models for new customers and new offerings. The balance across these differing types of innovation may shift based on market conditions.

Nevertheless, a safe-to-fail mindset is only valuable when it occurs with focus. Focus directs innovation efforts. More importantly companies can draw insights from their failures and use these to direct future efforts.

Conclusion

To become an innovative organisation is no easy feat. There is no ‘silver bullet’ to build a more innovative organisation; no ‘off the shelf’ package that drives new ideas. But a right view of innovation is a start. Marketplace disrupters are not roadblocks but opportunities to find new ways to solve problems and create value.

Pursuing growth through innovation is a delicate balancing act: Companies need to decide how wide and deep innovation efforts should be. Too much innovation can starve a company’s core strategy, while too little can erode competitive advantage.

Faced with a potentially disruptive innovation, weak companies often succumb to analysis paralysis as they try to define the future with perfect certainty before acting on the signals. But it is companies that embrace the challenges and opportunities presented by disruptive innovation who are the ones best positioned to build sustainable businesses. Companies should have innovation strategies in place that allow a rapid response to disruptive threats and opportunities.

CHAPTER 4

Cultivating Entrepreneurship and a Disruptive Culture

Max Loh, EY Asean and Singapore

Conversations on the future have seen a common theme emerge – that it is disrupted and predominantly driven by digital. Technological advancements in artificial intelligence, robotics, sharing platforms and the Internet of Things are fundamentally altering business models and industries. These changes are often not only alien to businesses; they are taking place at unprecedented speed and scale.

Recent research by Innosight forecasts showed that the average tenure of a company on the S&P 500 index will fall to a mere 14 years by 2026, down from 33 years in 1965. As a result, we can expect a 50% turnover in the index over the next 10 years. Market-leading companies face a stark choice: disrupt or be disrupted.

Many organisations, in particular the larger established ones that are encumbered by complex structures and bureaucratic processes, may find adapting to the pace of change a real struggle. Most large companies are hardwired to maximise efficiency, minimise variances and avoid experimentation. This can be incompatible with a culture in which risk-taking is a prerequisite for success.

Entrepreneurial businesses are often said to have a huge competitive advantage by virtue of their smaller size and simpler business model, which affords them the needed agility in dealing with change.

This possibly explains why there are growing numbers of companies looking outside their organisations for new ideas, collaborating with external partners, and particularly smaller entrepreneurs and startups, to identify, develop and scale up promising new product and process ideas.

Yet, size and ownership model alone rarely determines a company's success in seizing the upsides of disruption and change. Rather, a common quality among leading businesses is their relentless pursuit of innovation in a digital era and how business leaders are leading differently to ride on the upsides of disruption to deliver to the bottom line.

Driven by a purpose

According to an EY-sponsored Harvard Business Review study[13], organisations with a clear purpose drive innovation: these organisations have seen 10% revenue growth over the past three years.

Purpose and entrepreneurship are inextricably linked. In the very act of starting a business, an entrepreneur expresses his sense of purpose. Usually, that purpose will be an attempt to solve a pressing problem, seize a new market opportunity or bring a fresh perspective to a tried-and-tested process or product.

Companies face many possible innovation pathways and market options. Purpose helps people to focus on the "big picture" and encourages them to think beyond incremental product or service improvements and aim for more ambitious outcomes.

Companies should establish a clear corporate purpose – the "why," and not "what" – and use it to guide their innovation focus and investments. Remove anything that is not essential to the purpose. It's more efficient and drives innovation.

Encourage intrapreneurship

Successful innovation does not come from technology; it comes from people. Leading companies find, connect and empower great minds by providing them with an environment that facilitates the freedom to think and develop innovative solutions.

One of the ways is to foster intrapreneurship. Also referred to as "corporate entrepreneurship," intrapreneurship involves individuals or groups of individuals exploring high-risk, high-reward ideas within the safety and support of a larger, well-established corporate structure.

There are two factors necessary for intrapreneurship to take off. Firstly, there must be encouragement and support from senior management. Secondly, there must be reassurance that even if the ideas fail, the intrapreneur will not lose his or her job or be "punished" in other ways – and this is particularly important in today's turbulent business environment.

Large companies that consider intrapreneurship as essential may well find that they have the best of both worlds. They possess the necessary financial and marketing resources and a vast internal talent pool available to supply entrepreneurial ideas. By marrying the two, these companies stand to benefit from innovations of all kinds – in products, processes, services and ways to develop and expand their businesses.

Fostering internal innovation

How do companies fan the flames of innovation by tapping into the creativity of their existing employees? Here are some practical strategies:

i. Set up a formal structure for intrapreneurship

Give people enough time away from their "day jobs" to work on creative ideas, but set up formal processes to make sure those ideas go somewhere.

Companies must make the space to enable innovation. The innovation "sandbox" cannot operate like the rest of the organisation and must challenge fundamental norms like where people work; how people work; what is measured; what defines success; and how to recognise and celebrate failure.

Some ideas that support purposeful experimentation include:

- **An advisory board:** Can you tap diverse people in the company, young business leaders outside the company, or customers to bring outside-in perspective to identify problems and contemplate solutions?

- **Cross-pollination of talent:** When people swap jobs or when talent is recirculated geographically, they pollinate perspectives across functions, business units and roles. Can you create unexpected juxtapositions to offer creative thinking?
- **Corporate incubators:** Is there an opportunity to consistently invest in new ideas to solve problems – not beholden to short-term financial goals – to generate new products, businesses and insights?
- **Innovation community:** Are there physical or virtual ways to convene people across the company to meaningfully hear their ideas?
- **Investment:** Can you invest in a portfolio of smaller, more disruptive companies (that may even be disrupting your core business) to consider new approaches and potentially create new paths to market share acquisition?
- **Innovation challenges or hackathons:** With a discrete problem to solve and finite time and space to address it, can you convene unconventional thinkers across and beyond the organisation to generate new solutions?
- **Millennials:** Are there specific ways to tap into the youth in the organisation and empower them to drive new strategies?

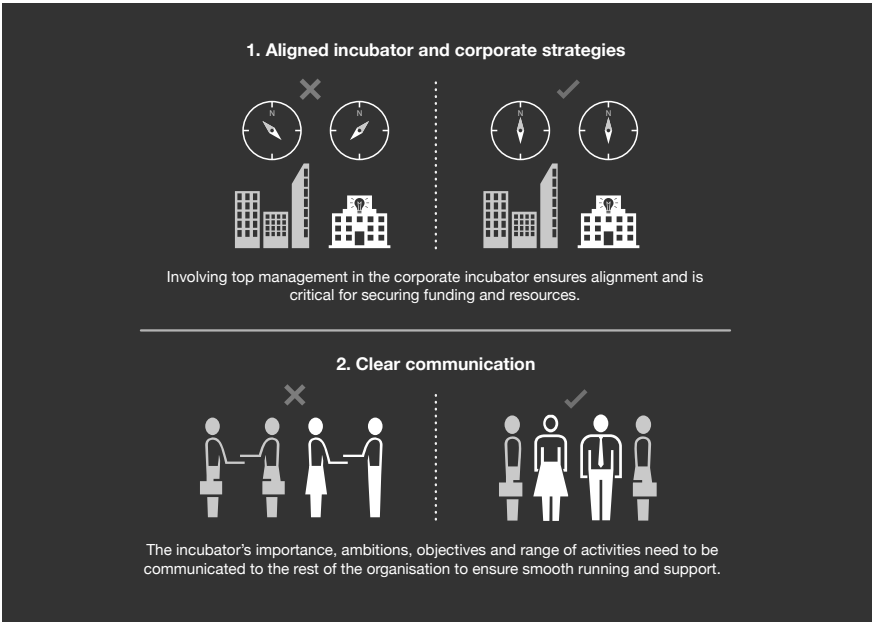
Spotlight:

Getting corporate incubators right

To help boost in-house innovation, many organisations are beginning to set up dedicated innovation units to explore opportunities and operate outside the constraints of existing operating models.

Dubbed “corporate incubators”, if done well, these can help businesses identify and engage with new fields and opportunities, by operating nimbly in new areas and testing approaches to identify potential routes to success.

To truly drive business growth and transformation, however, corporate incubators need to be set up in the right way. Here are five key qualities of a successful corporate incubator:



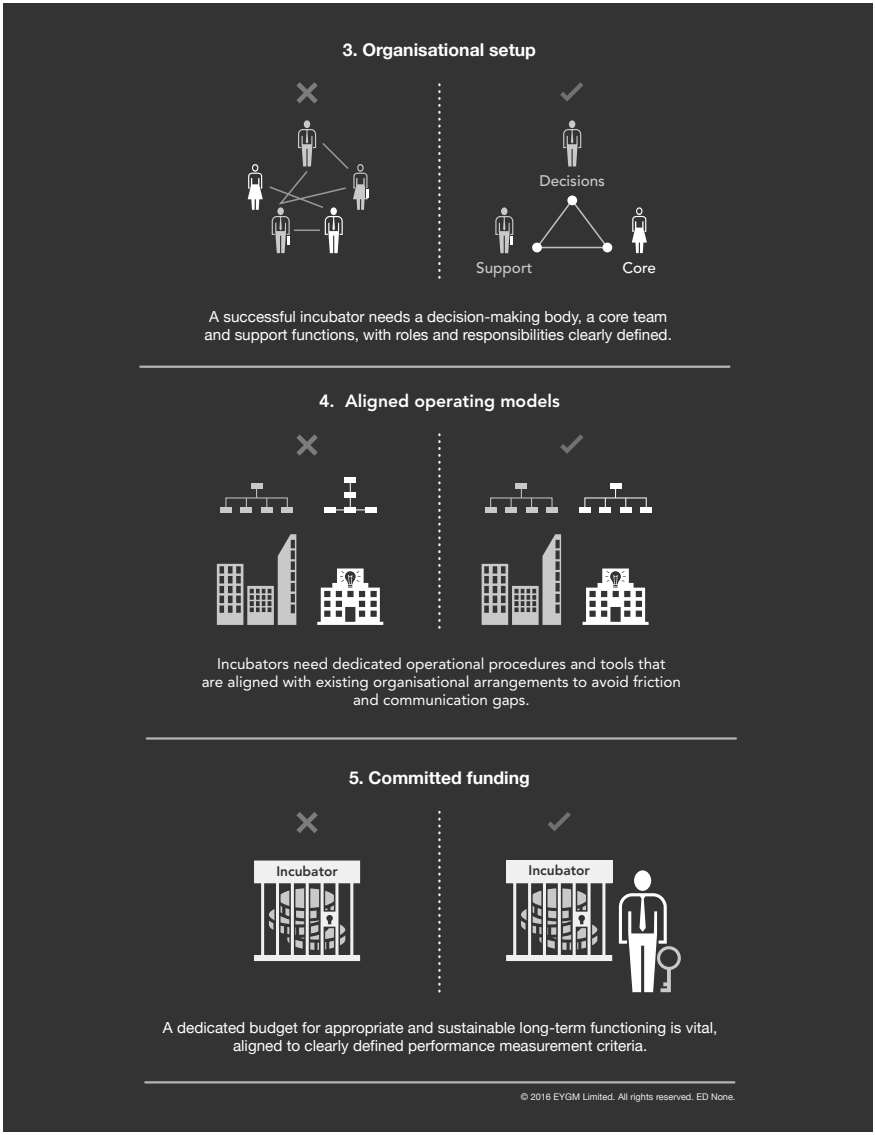


Figure 1: Five key qualities of a successful corporate incubator

ii. Establish a disruption awareness strategy

Getting everyone in the business listening for disruption is important. Ground-level employees may pick up disruptive signals before senior executives and so it is useful to encourage everyone from all ranks and functions to contribute to the innovation dialogue.

In addition to scouting for new emerging technologies, which can be a leading indicator of disruption, companies should monitor key financial metrics for deterioration. However, if financial results already show the disruptive threat in any material way, it's almost always too late. Financial results are, in fact, a lagging indicator of the threat.

iii. Plan for alternative futures

While disruption can't be predicted, it can be anticipated. Look for examples of disruption in other sectors and understand what they could mean as analogies for yours.

Companies can formulate alternative scenarios for the future, treating scenario planning as a process of continual revision, not a one-off exercise. Create urgency and educate the rest of the organisation about the implications of disruptive scenarios. Once formulated, scenarios can help to structure early innovation and ideation.

iv. Pilot and fail quickly

Taking a piloting approach that embraces failure can help accelerate innovation objectives. The key to success is creating small teams that are given the autonomy to act and the license to fail and infused with a reiterative "pilot" mentality. In the final assessment, recognise that pilots frequently yield consumer insight or identify market opportunities that are intrinsically valuable, regardless of whether the innovation succeeds.

Start by initiating pilots at the periphery of your business, focusing on opportunities with a clearly defined business problem and buyer. However, make sure that the pilot is connected to the centre of the organisation and linked to the company's overarching strategy. Ideas must be tied to problems, and killing ideas is as important as creating them.

v. Explore government incentives for innovation

Innovation often requires investments and government fiscal assistance can go some way in supporting your intrapreneurial ventures. Governments all over the world are offering new tax breaks and other incentives for research and development (R&D) – and corporations in turn are urging governments to support innovation.

While these strategies are by no means guarantees of success, they provide a roadmap that frees up organisational gridlock and sets up a supportive environment for the creative process.

Importantly, these strategies achieve a key goal: institutionalising intrapreneurship so that it becomes an inseparable part of a company's operations. Only then can the process of continuous innovation take place, allowing the company to become and stay a market leader.

Sustaining a culture of innovation

Maintenance is usually the most difficult part of any transformation program. The strategies outlined above are most likely to succeed if implemented within an organisational framework that views intrapreneurship as an end-to-end process.

That means supporting it with staff, resources and formal development procedures, from the very beginning of the idea right through to the market debut of the product or service. To do that, companies need to set in motion behavioural changes that sustain a culture of challenging conventional organisational thinking.

i. Maintain a culture of flexibility

Established companies with well-defined processes may never be as nimble as entrepreneurial startups but they can still streamline or eliminate cumbersome procedures that may prevent them from bringing an idea to market quickly. More important though is an organisational mindset that takes market uncertainty for granted, and develops the flexibility and resilience to deal with it in constructive ways.

ii. Examine your risk parameters

An intrapreneurial culture inevitably generates greater legal and financial risks for the company. Companies should continually reevaluate their risk profiles even as they allow for intrapreneurial efforts.

iii. Manage internal tensions

It's not enough for intrapreneurial individuals or teams to get support from the top. Buy-in from employees of all ranks is necessary as well given that internal discontent may breed among those who are not in the limelight for their intrapreneurial efforts.

iv. Look to the long term

True innovation requires a pipeline of new ideas that the company can rely on. Setting up an "intrapreneurship unit" within the company provides an idea bank to draw from at any time.

v. Encourage the happy accident

It's hard to always keep creating "the next big thing", especially if the company is already the industry leader. Many entrepreneurial successes have happened because someone found new uses for an old product, chanced upon a discovery or ventured into new industries or geographies.

Spotlight:

Collaboration for agile innovation

Many large companies seek to collaborate with entrepreneurs and start-ups outside of their organisations for new ideas to identify, develop and scale up promising new product and process ideas.

Yet, in practice, it is very difficult to get these collaborations right. Collaborations can get bogged down with bureaucracy, relationships can fail to move beyond the transactional, and the smaller firm can become frustrated by what they perceive as the slow speed and risk aversion of the larger partner.

Based on experience, successful collaboration with entrepreneurs and startups requires companies to adopt these nine principles.

Create

1. Make the case for being agile. Lead courageously.

2. Cultivate an agile culture of experimentation. Encourage ideas and embrace failure.

3. Think simple, act fast. Set clear and transparent objectives

Incubate

4. Identify the right team. Bring together the right internal team members with the right external partners.

5. Determine the appropriate framework for each collaboration. Understand the asymmetries and apply lean governance.

6. Maintain open, frequent communication. Align expectations and set rules of engagement

Activate

7. Adapt processes and break rules as necessary. Avoid rigidity in project planning.

8. Define and measure success. Set parameters to conduct innovation health checks, but don't obsess about perfection.

9. Iterate and work incrementally. Embed mechanisms to quickly learn from the experience and failure and be prepared to course-correct and pivot.

Leadership matters

Leaders that are able to sustain innovation need to find people who are passionate about their organisation's purpose, and empower them to drive it forward.

The reality is that business leaders no longer have all the answers and by that extension, nobody does in this current era of disruption. Instead, the role of business leaders has evolved to become one of "change agents" and a champion of an organisation ethos that will help their people and themselves to discover new pathways to innovation and growth.

For leaders who think they can generate new ideas, creative approaches and fresh perspectives without diversity in the boardroom or elsewhere in their workforce, they need to think again. Based on research, the majority of organisations that rated highly for diversity and inclusiveness are more likely to succeed in new markets and improve market share.

Most leaders would agree that there should be a good mix of attributes such as genders, backgrounds, qualifications and nationalities on their teams. However, diversity will not simply take care of itself and conscious effort spanning recruitment to development to retention must be taken in order to build a diverse team that is grounded in the criteria of meritocracy and not tokenism.

Achieving diversity is just one part of the equation to achieving high-performance and innovation. Leaders need to lead inclusively – and this may include a shift in leadership style and correction of an unconscious bias mindset – so as to harness the upsides of diversity.

Lastly, leaders must themselves be open, curious and questioning. The question that all great leaders should always ask is: Is there a better way?

CHAPTER 5

Building Transformational Business Models

Mohit Mehrotra, Arnub Ghosh, Richard Hill,
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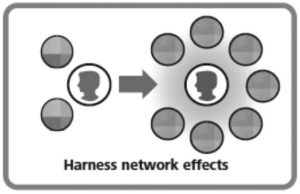
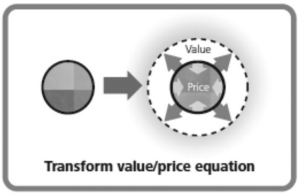
The pace of change continues to accelerate and intensify in the world along virtually every dimension. Through the blurring of boundaries between physical and digital worlds, disruption presents both opportunities and challenges to companies in multiple industry verticals. Along with the rapid convergence of enabling technologies, customers and business ecosystems, the rethinking of fundamentals on how a business creates and captures value needs to be a priority. By leveraging the five key principles of minimum viable transformation, companies will be able to adapt their business model around their shifting landscape and conditions more rapidly and efficiently. Coupled with a closer understanding of the patterns of disruption, firms will be better equipped to bypass traditional barriers to business transformation, ultimately resulting in greater success in their business model transformation endeavour into the 21st century.

The nine patterns of disruption

The presence of disruptive forces has the potential to be cataclysmic to incumbent businesses because they are hard to identify in advance and difficult to respond to. However, these threats often revolve around nine patterns of disruption, each entailing a particular combination of tactics and enabling catalysts that pose specific challenges for incumbents under certain conditions. With a growing array of disruptive catalysts in the recent decade, such as digitisation and interconnected platforms, incumbents are increasingly required to be cognizant of these nine patterns of disruption, and use them as a lens through which to view their business, the market, and the surrounding landscape. Ultimately, a re-evaluation of existing business models is necessary in order to compete and win in the new disrupted world.



1. **Expand marketplace reach** Connecting fragmented buyers and sellers – whenever, wherever
2. **Distribute product development** Mobilising many to create one
3. **Turn products into platforms** Providing a foundation for others to build upon
4. **Connect peers** Fostering direct, peer-to-peer connections
5. **Unlock adjacent assets** Cultivating opportunities on the edge



6. **Unbundle products and services** Giving customers what they want, nothing more
7. **Shorten the value chain** Connecting fragmented buyers and sellers - – whenever, wherever
8. **Align price with use** Reduce upfront barriers to use
9. **Converge products** Making 1 + 1 > 2

Figure 1: Nine patterns of disruption

Source: Monitor Deloitte, Patterns of disruption: Anticipating disruptive strategies in a world of unicorns, black swans, and exponentials (Deloitte University Press)

Developing transformational business models

One of the foremost thought leadership on business transformation draws insights from the idea of minimum viable products. Minimum viable transformations are essentially light and readily available versions of new business models. They are launched in the market at the soonest possible opportunity, and leverage customer feedback in enabling continuous enhancements. The minimum viable transformation is all about identifying flaws and conducting incremental improvements as rapidly as possible. It must be specifically designed, not as a proof of concept, but to test hypotheses and gain knowledge about uncertainties and challenges that could derail the success of the product.

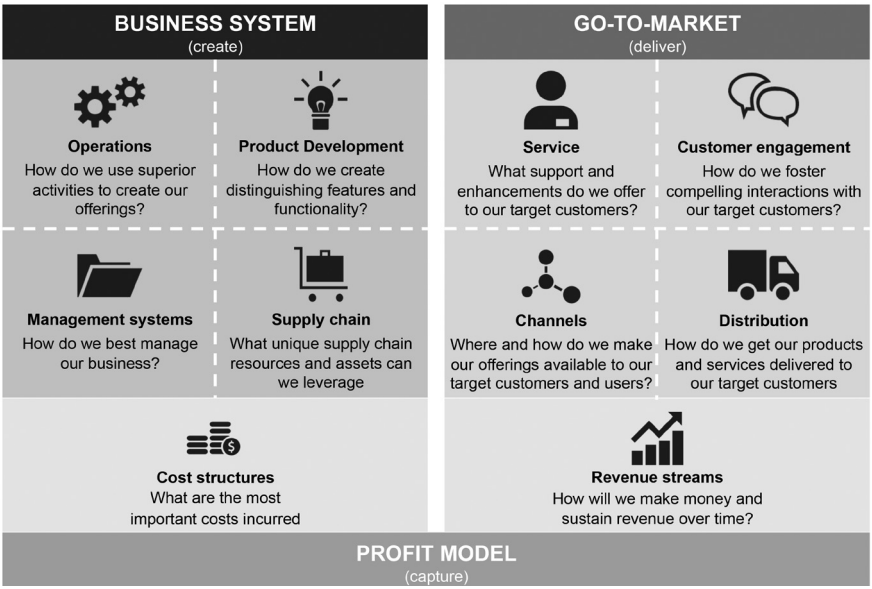


Figure 2: Business model elements and questions for validated learning

Source: Monitor Deloitte, Business ecosystems come of age: Minimum viable transformation (Deloitte University Press)

By closely following the ethos of minimum viable transformation, key business elements can be better understood through the process of iterative learning (Refer to Figure 2), enabled by customer participation and feedback. Ultimately, minimum viable transformation is, at its core, a strategy for gathering validated learning about individual business model elements, and how they interact and combine to form one cohesive strategy.

Business model transformations are not unprecedented in the history of commerce. However, with the shifting macroeconomic context and increasingly common disruptive forces, business model transformations need to be considered and executed more frequently through iterative feedback

loops – not as traditional "big bang" events which are linearly focused and with emphasis placed on executional excellence and detailed planning (Refer to Figure 3).

By adopting a minimum viable transformation approach, business leaders and their teams will be better equipped to circumvent potential challenges and evolve their capabilities and expertise in a controlled but rapid pace, ultimately reducing the risk of a total failure through a traditional "Big bang" business model transformation.

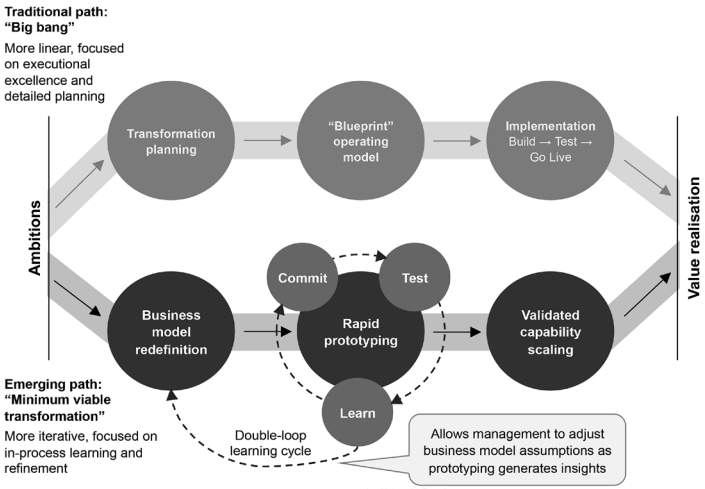


Figure 3: Alternate business transformation pathways

Source: Monitor Deloitte, Business ecosystems come of age: Minimum viable transformation (Deloitte University Press)

In order to ensure successful execution of minimum viable transformation, a shift in the mindset and understanding of the modus operandi of the organisation must first occur.

Business leaders are required to instruct and empower their teams to launch, and learn from, minimum viable transformations. Essentially, there are five key principles of minimum viable transformation that need to be considered.

1. **Learn how to learn**

   The central idea behind a minimum viable transformation is to learn from a true field experiment what has to be fixed or put in place before the envisioned business model can succeed at scale. The field-based learning proceeds through subsequent iterations and trials, allowing the business to continue adapting as the broader ecosystem in which it is situated responds and reacts to its new business model. In other contexts, this data gathering and analytic approach is termed as double-loop learning. All in all, instead of merely facilitating an error detection exercise against a pre-defined plan, double-loop learning allows for the re-examination of the underlying plan (or the transformative strategy behind capability building) itself.

2. **Pick up speed**

   The ideology of a minimum viable transformation stems from the need for learning to be conducted at a fast pace. This is all the more so because of the technological advancements preceding rapid information flows, enabling competitors to react and learn almost instantaneously from other companies' ideas and their corresponding market response. Business literature is full of examples of companies who observed changing dynamics, understood how their ecosystems were evolving, and committed to major transformations – but ultimately were not fast enough to capitalise on any potential gains before competition eroded the opportunity.

3. Embrace constraints

The counterintuitive effects of constraints on creativity is a commonly disputed topic. Nonetheless, much evidence suggests that instead of limiting creativity, an appropriate amount of constraints actually fosters greater creativity. Minimally, being in an environment in which constraints exist compels a focus on the goal – the need to learn and reduce risk around some key point – and forces designers to weed out nonessential elements. Many multinational organisations are finding success in resource constraints as they expand to emerging economies. Such constraints force companies to rethink their business models to not provide "less for less" but to retain the benefits while reducing resource intensity.

With regards to business model transformation, there is potentially an even greater benefit of harsh constraints. They provide organisations a reason to seek collaboration and cooperation from others who will be part of a new business model's ecosystem. Ideally, these constraints can also incentivise leaders to harness additional support from ecosystems of third-party participants who can provide complementary capabilities. In doing so, it limits the number of in-house capabilities necessary for transformation and helps the company to mobilise innovation and experimentation from third parties seeking to participate in an emerging and evolving business model. Promoting ecosystem development from the earliest stages of business model transformation can help build collaboration-centric logic into the core of the new business, which will be a key component for future-state successful business models.

4. Have a hypothesis

All transformation initiatives require a clear and simple articulation of both the need for change and the broad direction of change. The statement of direction helps leaders to identify key assumptions driving the change effort (assumptions that need to be tested and refined each step of the way) and to develop metrics that will support participants in the initiative to measure progress in the short term and to learn in real time. In order to accomplish such learning, minimum viable transformation efforts must have feedback loops in place for the collection and analysis of market-validated learnings. Such analysis is only possible, however, with an initial hypothesis already in mind. Essentially, fully defined assumptions, strategies, and tactics are a pre-requisite in understanding what is required to be tested. Transformation leaders should be particularly invested in the initial stages of transformation where those conjectures are laid out, before the data begins to flow in and confirming (or disconfirming) analysis commences.

5. Start at the edge

Initiating transformation at the "edges" of a business is a more reliable strategy for change than attempting to directly transform the core. Any attempt to impose a fundamentally new business model in the existing core of the company is likely to invite resistance from existing power structures in the firm. Moreover, as the core is where the bulk of the current revenue and profits are generated, a proportionate amount of risk would be incurred in attempting to reinvent the business model of the core that supports the overall organisation.

It is thus far better to find an "edge" of the current organisation – a promising new area of business that could provide a platform for piloting a fundamentally different business model and that has the potential to scale rapidly. Crucially, the best edges will have the potential to become a new core. Edges give the teams involved in the business transformation far more degrees of freedom to test and experiment with new approaches to evolving a fundamentally different business model.

Conclusion

Companies that thrived in the 20th century, when scalable efficiency, predictability, and standardisation won the day, now need to reassess the basic assumptions of methods and practices that will deliver the most value as they move into the 21st century. Often, the same aspects of a business that made it successful act as blinders to correctly identifying threats and to formulating appropriate response strategies. However, by recognising the nine patterns of disruption and embracing the five principles of minimum viable transformation, companies can create new competitive advantages, create and capture new sources of value, and sustain themselves in an ever kaleidoscopic world of disruption.

CHAPTER 6

Opportunities to Capitalise on Disruption and the Risks of Staying Still

Melvin Yong, CPA Australia

Depending on where you or your organisation sit in the value chain, the word disruption can conjure both fear or cheer. Cheer if you have identified and executed strategies to capitalise on the opportunities; or fear if you are sitting pat and not moved on the potential disruptive risks you have outlined.

Those who see opportunity in disruption will argue there is no need to be afraid of the phenomenon. Like the industrial revolution, we are in a time of immense creativity. There are many opportunities to thrive amidst the uncertainly but the potential for disruption needs to be taken seriously because the stakes are high. The game changer is the ability to respond and adapt quickly.

For those seeing their business models and processes disrupted, all is not lost. Under any difficult situation, there is always a silver lining if effort is made to find and leverage it.

In this chapter, we speak to three corporate leaders for their thoughts on how their organisations are coping with potential disruption to their business. They also share insights on how thinking out of the box has helped their companies thrive in the midst of uncertainty and continue to ride the waves of disruption.

Prashant Agarwal
Director, EDGE (Group Innovation), AIA

AIA's EDGE Team was formed in 2014 to study business models and technologies which will either accelerate or disrupt AIA and the insurance sector. The team studies how AIA can use these disruptions or capabilities to either enhance its offerings or improve internal efficiency. It works on a three pillar model: encourage continuous learning within the organisation; create synergies to stimulate innovation; and support capital research for innovation.

What has been the impact of disruption on your business model and industry?

We believe the real disruptors are the customers. As customer expectations and experiences have evolved – driven by the digital revolution – we find that our own industry's approach needs to be transformed as well. Be it real time decisions, better self-service, providing our agents better tools to serve their customers: all these items require change. One interesting thing we find in the InsurTech arena is that while initially the focus of many startups was to disrupt by seeking alternatives to the traditional business models, in the last year, the majority has shifted focus to augmenting the industry approach. A great impact is that digitally driven disruption acts as a catalyst for the entire industry to examine alternate approaches and create more value for our customers and distribution partners.

How are you responding to issues of disruption relevant to your business?

One big reality of customer-driven disruption is that we can no longer presume to know customer needs and expectations without revalidating with them. To that end, design thinking has been a powerful tool to help us understand the things customers expect and seek to do, and work towards solutions that meet or exceed these expectations.

We continue to collaborate with many different teams in the innovation ecosystem – across our markets and beyond – to seek new approaches. AIA is one of the leaders in the insurance industry in Asia to work with startups. Our first corporate accelerator was in 2014. Since then, we have had more than 30 startups become a part of our accelerators. Over the years, we have evolved the model and are now actively looking to execute pilots with our business units. Our recently concluded Global Blockchain Challenge got us entrants who proposed solutions from all over the world across many elements of the insurance value chain.

From your company's perspective, how do you think the adoption of new technologies and other more innovative processes can help organisations ride the waves of disruption ahead?

The word 'disrupt' typically connotes something that must be resisted. However, what can disrupt some incumbents in an industry can also become a source of unique advantage to the one that got ready for the event faster and better than the rest. Therefore, the best way to prepare for the disruptive forces is to create mechanisms to challenge oneself and seek better alternatives. These can be technology driven. They can also be process led. Business models now are increasingly responsive to insightful value generation, the power of networks and use of augmented intelligence and machine learning to serve customer needs in relevant and breakout ways. The great thing about a data-driven insights approach is that it sets up the organisation to be more aware and – therefore – be more ready for change. It also brings fact-based outcomes to the decision-making process.

As your organisation implements your response to disruption, how did you overcome potential resistance to change and move up the value chain?

We have found the approach of 'collaborative innovation' to work well. This takes the form of external collaborations – where we have tapped into the expertise of universities, Government research agencies, startups and industry players – as well as internal collaborations. We get active business partnerships for our initiatives. This ensures that any pilots are scoped right to begin with and the business learning can be maximised. In addition, for newer capabilities like Blockchain, we find it useful to have internal advisory groups helping us to look at the capabilities more holistically and at each end of the value chain.

In addition, we have found that capabilities like Design Thinking and Agile have also helped us establish a common vocabulary and processes across teams in the organisation.

"Digitally driven disruption acts as a catalyst for the entire industry to examine alternate approaches and create more value for our customers and distribution partners."

Prashant Agarwal, EDGE (Group Innovation), AIA

What advice would you give others who would like to learn from your experience in capitalising on disruptive trends? What do you think are the risks of staying still?

It is tempting to believe that size, complexity and scale will insulate large companies and capital-intensive and highly-regulated industries from dramatic change. However, there has been widespread democratisation. Smaller companies now have access to capital, regulators encourage new ways to tackle old problems, and one can access top quality data scientists on a pay-per-use basis. Artificial Intelligence advances continue to drive 'virtual cloning' of the best capabilities and offer them up on a mass scale at low price points. Therefore, the biggest risks of staying still are now that you will remain while the world has moved on.

In today's environment, the risk of fast failures is – in most cases – much less than the risk of inaction. Therefore, it is best to start from the basics and tap into the 'power of the non-expert', one with fewer preconceptions, to frame out the problem statements. Then craft sensible experiments. Get full engagement from the business unit teams to see how these experiments could aid their business objectives. Lay out clear performance objectives and leverage startups to execute experiments quickly and inexpensively. The traditional way of operating typically had much emphasis on PowerPoint. In today's 'learn and pivot' era, it is faster and even cheaper to prototype and test.

David Low
Chairman and CEO
Futuristic Store Fixtures Pte Ltd

Futuristic handles bulk-manufacturing of furniture and store fixtures, such as shelves and hanging bars. It deals exclusively in retail store fixtures providing constant innovation and improvement through R&D. Headquartered in Singapore, the company operates full-fledged manufacturing facilities in China, Malaysia and North America comprising both wood and metal joinery capabilities. With an integrated value chain, Futuristic has delivered more than 7,000 retail stores globally in less than 10 years. Futuristic's clients include some of the world's largest mid- to high-end brands, such as Victoria's Secret, Levi's, Charles & Keith and Saks Fifth Avenue.

What has been the impact of disruption on your business model and industry?

The disruption especially brought upon by digital and social media technologies has inevitably created more online and alternative platforms for consumers worldwide. Futuristic, being in the consumer-proxy industry to provide store fixtures and displays for retail stores, is also concerned that the small to medium size retail chains may perceive a less-aggressive growth outlook in the expansion of their physical stores from this disruptive trend.

However, as most of our clients are global leaders of their respective retail verticals, they will continuingly and aggressively innovate to address these disruptions and change the game to get ahead of the waves. Real estate and mall owners will be seeking to entice these larger retail chains to bolster their own growth and attractiveness. This will give our large clients more room to take advantage of and enhance their offerings, as well as increase the consumer experience.

Futuristic will continue to support them earnestly with our "how to make our customers even more successful" attitude.

How are you responding to issues of disruption relevant to your business?

Instead of retreating on our growth plans, Futuristic is in fact expanding our capacity building efforts through both organic and inorganic (i.e. mergers & acquisitions) strategies. Having strengthened both our brand reputation and mass-production efficiency, we believe in our better value propositions to benefit both our existing clients and in entering new client segments.

My team and I are already working with Singapore's leading expertise in Mixed Reality (MR) technologies, which include Virtual Reality and Augmented Reality. We will be adopting these latest disruptive enablers to develop toolkits for ourselves and in re-shaping our brand image and key work processes. For instance, we plan to adopt MR technology to complement our prototype building by introducing seamless virtual reviews for our clients, many operating across borders and half-way around the globe, and to substantially reduce the turnaround and response time.

From your company's perspective, how do you think the adoption of new technologies and more innovative processes can help organisations ride the waves of disruption ahead?

I am a firm believer in adopting new technologies and in the prompt evaluation on how these latest innovations can be optimised in the shaping up of our competitive advantage.

"The future belongs to those who can re-invent themselves. We must keep re-learning and believing."

David Low, Futuristic Store Fixtures Pte Ltd

Let me cite my company's recent experience. By taking steps to understand, think and then formulate linkages, we saw how some of these disruptive technologies can in fact serve us positively as people will regain the belief that viable solutions can be improvised for our purposes. That is an important break-through in both mindset change and team cohesion. Next is the execution. As these bold strides increase, our organisation will be able to carve out even more solutions, which will enable us to ride out the disruptive waves and continually stay relevant.

As your organisation implements your response to disruption, how did you overcome potential resistance to change and move up the value chain?

Sharing my perspectives on addressing disruptions alone is not sufficient. Most people still fear the onslaught of the disruptive changes. They are not sure how or if our response is good enough and will continue to resist moving up this "thoughts value chain". At every opportunity, I have to regularly and closely engage with my teams to instil both knowledge and confidence in them.

Bringing in more tech-savvy and young people from the millennial generation, as well as having technology experts work with us, has helped to mitigate some of the resistance and will continue to raise vibrancy across my organisation. Having everyone involved in some projects, which disrupt their usual work approaches and processes, has raised the level of participation, contribution and, ultimately, the confidence in them.

What advice would you give others who would like to learn from your experience in capitalising on disruptive trends? What do you think are the risks of staying still?

Disruptive technologies are not new. It is the speed and intensity at which these are coming on-stream that are the key concerns. Organisations will need to embrace these, and not steer clear of them, in order to re-invent themselves and remain relevant tomorrow.

My working motto to my people is: "The future belongs to those who can re-invent themselves". We must keep re-learning and believing! This is aimed at raising their awareness; steering them to respond with an open-mindset with the desire to learn new things; and, to also believe and be confident that we can stay strong collectively in riding these disruptive waves forward.

The real risk of staying still is actually "moving backwards" in relative terms. Today, new technologies and innovations wait for no one. We either try to stride alongside it to go forward or do nothing, fall farther behind and become irrelevant tomorrow.

Eric Lew
Executive Director
Wong Fong Industries Ltd

Wong Fong Industries Ltd distributes equipment and components for load handling systems and waste management systems. It also offers engineering solutions, and repair and maintenance services for truck-mounted cranes. The company operates through various segments: Equipment Sales, Projects, Repairs & Servicing, and Training. The Equipment Sales segment sells and installs load handling systems and waste management systems. This segment also holds dealerships of load handling systems, waste management systems and other related engineering equipment and products. The Projects segment provides design, customisation, engineering and integration of equipment and solutions. The Repairs & Servicing segment offers servicing and maintenance support services. The Training segment provides accredited training courses in the infrastructure development and manufacturing industries. The company was founded by Jimmy Lew and James Liew on January 2, 2015 and is headquartered in Singapore.

What has been the impact of disruption on your business model and industry?

The impact of disruption has been a gradual shift so far. Previously, as an engineering company in the land transport and engineering industry, Wong Fong just needed to worry about mechanical machines such as mechanical cranes. They have evolved to become mechatronic machines, for instance, mechanical cranes with sensors and electronics. Next, we are talking about robotic and intelligence machines. What this means is that every step of the way, we needed to hire new talent and also upgrade ourselves to face the challenges. But there was time to do it, as evolution was gradual. The danger comes as disruption trends start to accelerate, which is what I think will happen in the next few years.

How are you responding to issues of disruption relevant to your business?

In 2013, we started the Wong Fong Research and Innovation Centre (WFRIC). WFRIC's primary role is "Researching the future, and Innovating NOW". The first step is to identify the major trends that will affect our industry. Once you have identified the trends, then you go about taking steps to allocate resources to innovate to leverage the trend identified. For example, we have identified robotics, telematics, electric mobility and autonomous mobility as key trends in our industries going forward.

"We break innovation down to 3 steps: Renew, Rejuvenate, Reinvent. When you break it down into simple steps, it can help organisations start something and not be caught in analysis paralysis."

Eric Lew, Wong Fong Industries Ltd

From your company's perspective, how do you think the adoption of new technologies and other more innovative processes can help organisations ride the waves of disruption ahead?

To better handle the disruptive forces ahead, companies need to innovative. But innovation is a big scary word. Thus, in our company, we break innovation down to 3 steps: Renew, Rejuvenate, Reinvent. When you break it down into simple steps, it can help organisations start something and not be caught in analysis paralysis.

Renew is 'hardware', such as upgrading your office, staff attire and company CI (corporate identity) to create a new environment and image.

Rejuvenate is about rejuvenating your human resources. As an engineering company, we already have a lot of good engineers. To handle the new trends ahead, we have hired designers, inventors, futurists and communicators. By building a team with diverse talents, new ideas and products can be born.

Reinvent happens once you have the right talents on board. Then can go about reinventing new business models. In our case, this was moving from a dealership model to creating our own products.

As your organisation implements your response to disruption, how did you overcome potential resistance to change and move up the value chain?

In any change process, there will be resistance. Change involves a lot of communication and convincing the board to move in a new direction. At the same time, to makes things easier, we set up new teams to handle new projects. The core business and operations continue to run, while at the same time we invest in new companies that focus on 'moving up the value chain'. As an analogy, when you add new water to an aquarium, do it gradually, and don't change all the water at one shot.

What advice would you give others who would like to learn from your experience in capitalising on disruptive trends? What do you think are the risks of staying still?

We need to look beyond daily and yearly operations and outlook. Many companies are still focusing at how the ship is run, that is, operations. But no matter how well the ship is run, there could be an iceberg coming your way. Thus, we need to keep one eye on the future, the other eye on the now. Collaboration is also key. Wong Fong is a small and medium-size enterprise. As such, we need to collaborate with other good companies with complementing technologies and research institutes to capitalise on new trends.

Conclusion

The era of business disruption seems likely to stay for as long as new technologies and process improvements continue to change the way things are done in the corporate world. Opportunities abound for businesses in the new normal but so are heightened risks if companies do nothing or just the bare minimum.

The corporate leaders interviewed here have provided a few key takeaways from their experience in coping with or preparing for disruption to their businesses.

- Disruption, whether digital or otherwise, provides the impetus for organisations to constantly find alternate ways to create more value for their stakeholders and customers.
- The same technology or process-led mechanisms that have shaken up old business models can also be levers to counter newer forces of disruption.
- Beyond the technology aspects, nurturing human talent by building an ongoing culture of innovation and acquiring new skills will also be critical.

As one corporate leader aptly put it, “The future belongs to those who can re-invent themselves”. Certainly, these are good lessons in the journey to groom the next generation of disruptive professionals.

CHAPTER 7

Grooming the Future Disruptive Accounting Professionals

Gary Pan, Tan Gan Hup, Seow Poh Sun,
Singapore Management University

Digital disruption in higher education

Traditionally, people attend university to access information unavailable elsewhere, and to access minds only available in the institution, build professional networks for a career and walk out of the experience with a degree. Millennials today want learning to take place in real time – not just in the lecture hall or classroom. Students are naturally familiar with the immediacy and interactivity of online, mobile, video and social tools, and expect on-demand, self-led learning. Learning is no longer bounded by the constraints of time and geography. In this digital era, universities are offering many digital learning tools to support student learning. For instance, students can access pre-course materials easily from a range of supporting technology, and receive instant feedback on post-course evaluations. Others include online courses, increased social collaboration, simulations, immersive learning, and information delivered in smaller, "bite-sized" portions, which could be reinforced over time. Widespread accessibility to the Internet has enabled students to learn in a different way than before, and hence teaching pedagogy should ensure that skills and knowledge are imparted to students in an effective manner.

Skills needed for this disruptive economy are evolving rapidly and drastically. In the 'Future Work Skills 2020' report[14] released by the Institute for the Future, 'multidisciplinarity', and 'novel & adaptive thinking' skills were identified as skills important to future workforce. Multidisciplinarity involves drawing from several disciplines to redefine problems outside normal boundaries and reach solutions based on a new understanding of complex situations. Novel and adaptive thinking refers to the ability to problem solve, think outside the box and come up with tailored solutions. Mastery of both skills may require collaboration between relevant entities in devising effective solutions to address complex problems. The report also identified useful skills such as 'real world work exposure' and 'managing collaboration with industry partners'. It notes that defined learning outcomes and structured activities must be established to support the learning outcomes in collaboration with industry partners. It also implies a curriculum that integrates industry experience with learning in classroom.

Besides the 'Future Work Skills 2020' report, Singapore's recently launched national movement, 'SkillsFuture'[15], which aims to promote a mindset of continuous lifelong learning, also emphasised the importance of knowledge, application and experience.

Given the nature of the changing landscape, there is a need for universities to develop teaching pedagogy and learning approach that will prepare students for future economy. The new approach should be student-centred, industry aligned and turn students into active learners that learn how to learn. In order to remain competitive, universities must therefore find ways to attract, engage and sustain relationships with their students by enhancing their learning experience at the university.

In this chapter, we will discuss how SMU brought about innovation changes in the university's learning environment. In 2011, a steering committee was set up by SMU President, Professor Arnoud De Meyer to develop strategies that focused on innovation in learning pedagogy at the university. Subsequent brainstorming sessions led to the evolution of the SMU-X programme, which aimed to broaden the scope of university education by encompassing real life problems and problem-solving skills in the curriculum. The concept encompassed three key elements: mindset, pedagogy, and physical space. The challenge was to offer more applied learning with close coordination between classroom learning and practical industry application to students.

Making learning holistic: The SMU-X initiative

Since its conception in 2000, SMU was designed to provide a different model of university education here in Singapore; positioned as a boutique University modelled after the Wharton business school in USA. Besides pioneering an interactive teaching pedagogy and a broad-based curriculum for Singapore, SMU's faculty worked largely to publish rigorous research within their disciplines. Research centers were also largely mono-disciplinary. Since then, SMU has grown substantially and evolved to a specialised but more complete social science university.

The challenge for SMU is to continue to transform its education so as to prepare students to be future ready as the scale and complexity of the challenges facing the world and its graduates today are unprecedented. With these challenges in mind, it is paramount that universities identify and equip their students with relevant skills for the future by embracing innovation in their teaching pedagogies and making learning more pertinent.

It is therefore timely that SMU prepares students sufficiently to face these challenges. With that in mind, SMU zoomed in on how it could improve on its interactive pedagogy and make learning more pertinent and pioneered an innovative educational model called SMU-X in 2015. The SMU-X Initiative is a paradigm shift which focuses on learning as opposed to teaching as well as a mind-set shift to get the university to collaborate both internally and with its external stakeholders.

Through SMU-X programme, it is believed several future work skills will be inculcated in students' learning process. The skills which the programme hopes to develop include: (1) Ability to see connections and differences across disciplines and to integrate knowledge to explore an issue or meet a challenge; (2) Adaptability to new or unfamiliar environments and to exercise leadership; (3) Creativity and critical thinking when solving problems; (4) Sound decision making while managing complex situations and (5) Ability to work collaboratively and productively as a team. These skills are consistent with major skills highlighted in both Future Work Skills 2020 report and the SkillsFuture initiative.

In other words, for the SMU undergraduates, every SMU-X course will challenge and inspire them to use their disciplinary knowledge and skills in tackling multi-disciplinary, real issues faced by the partner organisations. By deep-diving into current and actual problems and constraints, SMU-X courses can accelerate students' learning to go beyond hypothetical classroom exercises. Courses span across different disciplines and students get to help improve people's well-being, contribute to society or help businesses improve processes.

At the same time to build up an ecosystem for students, faculty and partners to interact, SMU looks to creating physical environments and learning spaces to support the collaboration and project work that takes place within the curriculum. It is believed the concept of SMU-X: creating a collaborative mindset, experiential curriculum and space, will bridge the gap between academia and practice, and prepare undergraduates to the challenges of the future.

SMU-X approach

Mind-set: First and foremost, SMU-X is a mind-set; one that gets SMU members to collaborate and step out of their current silos. Universities have traditionally been slow to innovate and collaborate; are good at the "deep" but rarely look at problems that are 'broad'. There is merit in encouraging group effort in solving complex issues. With SMU-X, SMU aims to be a better city university and for its students and faculty to work actively with the community as well as its research centres. Each party brings with them their expertise and industry-specific viewpoints in a collaborative approach using both disciplinary knowledge and multi-faceted perspectives. To do so, SMU has two strategies: SMU-X pedagogy and space.

A pedagogy: SMU-X pedagogy comprises four principles: i) project-based experiential learning through tackling real world problems and issues; ii) inter-disciplinary learning; iii) active mentoring and; iv) a tripartite learning loop for the faculty, student and industry partner. Basically project based learning is "a systematic teaching method that engages students in learning knowledge and skills through an extended inquiry process structured among complex, authentic questions and carefully designed projects and task"[16]. It is suggested that students may become better researchers, problem solvers and high-order thinkers through project based learning.

Clearly, the confluence of disciplines offers possibilities for richer and deeper learning. From graduate capabilities and outcomes to the creation of diverse knowledge bases, interdisciplinary teaching enhances the development of creative and practical skills that enables application across industries and practices.

A SMU-X course is a structured 15-week course which combines academic theory with experiential learning through the heavy use of real unresolved issues and projects that students work on. It is interdisciplinary either in the topic or approach and/or the student mix to ensure that the problems are viewed in from multiple angles. It partners with the industry, non-profit and government-sector organisations to develop and teach its courses and projects. SMU-X partners and SMU faculty are involved in active mentoring so that the students benefit most out of this deep relationship. Lastly, a SMU-X course serves to help students get a better understanding of what it means to use theory learnt outside the classroom, its faculty on how real world adapts theory and its partners to build a culture of learning. This inculcates in its students and partners the value of continuing education which is imperative going forward given its rapidly changing economic conditions. Refer to Figure 1 for SMU-X's rationale, curriculum & pedagogy and principles.

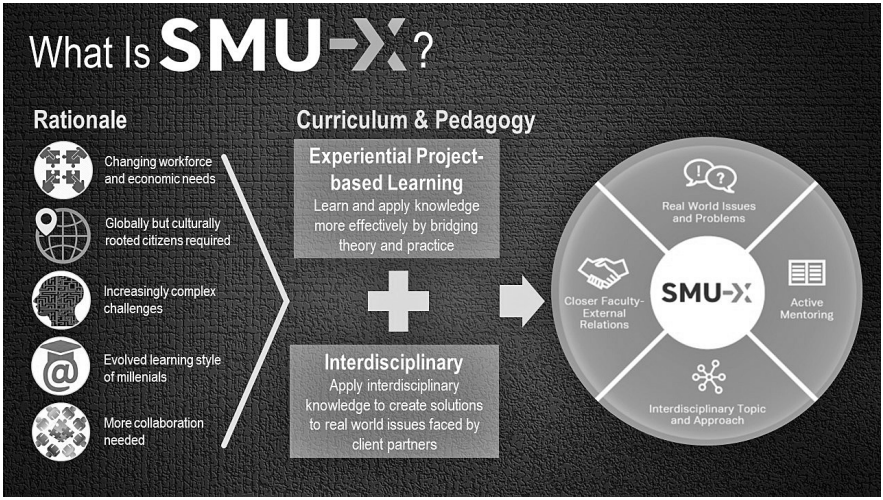


Figure 1: SMU-X's rationale, curriculum & pedagogy and principles

Space: Finally, it is also about space. Physical space is still relevant and important even as SMU moves towards an increasingly virtual world. There is scope to improve the learning environments, both in-class and out-of-class to create 24/7, co-working, learning hub with active learning classrooms. This caters to the differing learning styles and at the same time, extends space through time where students can now work on their projects with their industry partners even till late in the evening. SMU has adopted a lean approach by creating learning spaces prototypes (SMU Labs) in the university.

Engagement

To date, 28 SMU-X courses have been delivered. Two were launched in January 2015 as the initial pilot. SMU estimates that these courses will benefit about 2000 students yearly. Currently, SMU-X has about 170 industry partners that span across various industries. To date, students have completed over 2000 industry projects. Here we will highlight three SMU-X courses to illustrate how such courses are taught and learnt by faculty and students respectively.

Intelligent accounting function (IAF)

The course IAF focuses on how the accounting function is rapidly transforming to become "smarter" such that the function goes beyond its traditional role of financial reporting and control to providing higher-value intelligence that the management can use to make strategic decisions. This module covers topics such as lean finance, finance shared services, analytics and enterprise performance management, all of which are critical in achieving an intelligent accounting function. This is timely as, with the proliferation of Big Data, several accounting professional bodies have highlighted the importance of developing analytical skills among accounting graduates. IAF is interdisciplinary where it combines knowledge from accounting and information systems domains, thus providing students with a comprehensive understanding about intelligent accounting systems.

The IAF course was co-designed with an industry partner, DFS Venture. Students were given the opportunity to work collaboratively with DFS to address business challenges faced by DFS's accounting function. Senior managers from DFS mentored students actively over the course of the module and provided necessary guidance and support as the teams worked on identified issues.

The DFS project focused on developing a performance measurement programme that is comprehensive and metrics-driven. Central to the programme is a balanced scorecard that includes key financial and non-financial performance metrics, targets and a driver map that links each metric to an overall strategic business objective. The overall purpose for developing the scorecard is to measure the performance of the accounting function and find out whether the operation aligns to the strategic goals of the company. In the project, students used appropriate tools and methodology to provide balanced performance measurement. They also developed a practicable framework, as well as specific metrics, that the project sponsor organisation ought to adopt. Project teams selected one or more metric(s), and developed a prototype based on a visualisation tool called Tableau, to capture and compute the necessary data to track and report these metrics regularly.

Diversity management in Asia

The Diversity Management in Asia course allows students to understand, examine and reflect critically on their identities, power and privilege through theories in multiculturalism and diversity in the context of teams, organisations and societies. Students are expected to learn how "difference" is constructed and internalised along with the formal and informal social and policy responses that have guided cross-cultural interactions in Asia and globally. Through contemporary and cross-disciplinary discussions, facilitated in- and out-of class activities, case studies and readings, students are introduced to the interplay of demographic, historical, cultural and ideological particularities in the management of difference. The class also involves practitioner-led dialogue sessions, mini-workshops, site visits and hands-on projects with partners to provide a well-rounded and immersive learning experience.

The project in this course involves students wearing props to simulate what it might feel like to have certain disabilities or physical conditions, including leg injuries, old age, bad eyesight, pregnancy and poor hearing. Students were split into groups, and worked together to finish four tasks, such as buying snacks at the food court and looking for a book in the library. The project was aimed at instilling empathy in students for those who have to deal with real disabilities.

Managing process improvement

The Managing Process Improvement course teaches the six-sigma method to improving operation processes. Students work with clients e.g. Singtel, Infineon, Essilor, Decathlon, Liberty Insurance, Rentokil, APL, Microsoft and Louis Vuitton Moet Hennessey (LVMH) for the full 15 weeks of the course with deliverables often from the 2nd week onwards. In the LVMH project, the students worked with the LV outlet in Marina Bay Sands to schedule staff rosters based on foot volume in the store so that this could lead to an increase in sales. After the changes were made, the results were immediately implemented.

All students who successfully completed the projects were awarded with six sigma green belt certifications. The feedback from our industry partners was very positive. Partners were keen to send their staff who was mentoring the students for the course and potentially also be green-belt certified. Having industry partners in the class as a participant would bring about a richer discussion in class where the industry would bring in their experience on a discussed issue while our students can now view the same issue with fresh new perspectives.

Impact

For Students: Generally, students commented that SMU-X courses are intensive, time consuming and challenging as they have a real client to manage and expectations to live up to in addition to academic deliverables. At the same time, students were positive as these SMU-X courses have offered a richer learning experience. Students enjoyed these courses as they were doing projects that had real world impact and could see how their solutions could be applied in the real world setting.

The students' feedback indicated that SMU-X pedagogy is beneficial for their overall learning outcomes such as enhancing their problem-solving, analytical, reasoning and communication skills. The course demonstrates a curriculum design that integrates industry experience with learning in classroom.

Quotes from students:

> *I realised that developing a practical solution to address a real-world challenge is not as straightforward as I initially envisioned. There were many practical considerations we had to take into account when designing and developing a solution. This course has helped me to better understand the practical constraints that corporations faced as they deal with various challenges.*

All of our presentations were done in a corporate context, where we had to present to senior management and other professionals. This was honestly something entirely outside my comfort zone as it was my first time making a presentation to external stakeholders. I learnt how to be more confident and professional in my delivery and also, the importance of adapting one's presentation style to cater to different types of audiences.

This course has equipped me with both technical knowledge and honed my soft skills such that I am more prepared for the working world.

For Partners: External industry partners were also supportive of the experiential learning approach. They welcomed this initiative and saw that SMU-X was a way to bridge the gap between academia and industry and found it interesting to look at their businesses from fresh perspectives. They felt that it often took time for students to adjust to the working environment coming from the university but SMU-X electives acted like a guided internship and allowed students experience working on substantial projects with staff under the direct supervision of faculty. Companies also got to know potential hires better and vice versa. This enhances the cultural fit for both the hire and the company.

For example, one of the partners in the IAF course, DFS, was pleased to collaborate by providing a platform and business environment for students to work with finance leaders to work on a real life business case study. DFS stated that "as the students were working on a real business issue, their main challenge was to develop a solution which is practical, workable and something which could relate to the business issue."

DFS indicated that this collaboration benefits the company as the company would actually obtain a solution to a real life business problem that they were facing. The finance executives of the company also shared that the close interaction with SMU students provided them the opportunity to learn new ideas and knowledge. They commented that through the project experience, the mentor-mentee relationship has evolved into a friendship. DFS believed that SMU-X pedagogy would "set SMU students apart from other university students who would largely be driven by classroom training and experiences." DFS also provided positive feedback about the students. They found SMU students "very engaging", "able to communicate continuously with their mentor", "very committed to developing a solution", "very resourceful, able to work under stress, and able to think on their feet."

Quote from DFS:

> *"As the world's leading luxury retailer, DFS takes great pride in delivering exceptional service to our customers. Collaborating with SMU students and their professors in carrying out projects related to the establishment of an intelligent accounting function represents a unique opportunity for DFS to further enhance the customer experience. We look forward to engaging these enthusiastic students as they work on creatively applying concepts to developing practical solutions that could assist out business."*
>
> ***Mr Gurbinder SINGH, Vice President, Global Shared Service Centre***

Besides DFS, CPA Australia has also participated in the IAF course as an industry partner. It invited its members to a lunch forum where students presented their findings to Accounting practitioners. Melvin Yong, the Singapore Country Head of CPA Australia is supportive of the SMU-X pedagogy and commented that "the fact that the students of SMU were able to interact with members that work in this areas would give them a lot of industry experience and knowledge in terms of what working life is like".

For Faculty: Faculty, too, learn the constraints of the industry to better inform their theory as well as gained rich data and research ideas. This led to the preparation for journal articles and academic cases. An important aspect of this course is helping faculty build stronger relationships with industry partners as they collaborate over the module which helps breaks the silos that research universities are known for.

Quotes from Faculty:

> *"My main motivation in pursuing SMU-X pedagogy is to better prepare students with future work skills to tackle increasingly complex problems. According to 'Future Work Skills 2020' report produced by the Institute for the Future, these future work skills include 'multidisciplinarity', and 'novel & adaptive thinking' skills. With these insights in mind, I have always believed defined learning outcomes and structured activities must be established to support the learning outcomes in collaboration with industry partners. Student learning will be greatly enhanced if a curriculum integrates 'solving a real world problem with guidance from practitioners' with 'concepts and theories in classroom."*
>
> ***Gary PAN, Associate Professor of Accounting***
>
> *"I am very excited to be teaching this course. This course is unique because of the interdisciplinary nature of the course where students learn how technology enables to enhance accounting productivity, and offer deeper insights into financial health of the organisation and drive business value. The course will focus on four key areas namely finance strategy and transformation, lean finance and finance shared services, business analytics, and enterprise process management."*
>
> ***Venky SHANKARARAMAN, Professor of Information Systems***

Faculty who has piloted SMU-X courses also benefited from the experience. Many felt that the rich data from the industry projects and through working with the companies offered them ideas and supported their research at the University.

Challenges

Students face several challenges when studying a SMU-X course. For instance, they do not have a precedent which they can refer to and the questions that they face while doing the project are largely things which they cannot find in textbooks or from classroom-based learning which they have undergone previously. Thus, students need to have self-initiative and do a lot of research on their own.

It is challenging for undergraduate students to work on a real business issue and develop a solution which is practical, workable and something which could relate to the business issue. Students require mentorship from faculty (content mentor) and project sponsors (context mentor). So this requires significant time commitment from mentors of project sponsors.

Faculty, too, are required to invest significant time in preparing the course and mentoring the project teams. As real-world projects tend to be more complex and typically come with lots of constraints, students may require more support and guidance in developing a usable solution.

Conclusion

Going forward, we would like to scale this SMU-X pedagogy and offer all our undergraduates an opportunity to do a SMU-X course if they choose to. At the same time, we are planning to embed this methodology into our graduate courses by introducing SMU-X elements into our master programmes. This means that the team is actively growing the courses and supporting faculty with the design of the courses as well as identifying and reaching out to industry and community partners to enhance our relationship with them. This is also an opportunity for SMU to support our faculty and staff with professional development by creating a community for experiential learning to share best practices and also upgrading opportunities for our faculty to teach using the SMU-X approach.

Overall, SMU-X provides an alternative experiential learning approach which can be used to supplement traditional teaching methods as well as internships to bridge the gap between academic and industry and prepare our students to be “future-ready” for the workplace.

CHAPTER 8

Helping Hands

Gary Pan, Seow Poh Sun, Clarence Goh,
Singapore Management University

Disruptors have found new ways of transforming various industries with intelligent technologies which have put significant pressure on enterprises in Singapore and around the world. With a good education and training system, and a cohesive relationship among the Government, businesses and people, Singapore is well placed to respond to such digital disruptions. Nevertheless, Singapore companies must strive for quality growth based on innovation, expand beyond Singapore and create an environment that enables innovation, said Minister in the Prime Minister's Office and Labour chief Chan Chun Sing[17].

No two industries are disrupted in the same way. With help from the Economic Development Board (EDB), SPRING Singapore, Infocomm Development Authority of Singapore (IDA) and International Enterprise (IE) Singapore, specific strategies can be devised for individual companies to develop new technologies or invest in the upgrading of skills. This will ensure that companies in Singapore constantly improve and stay proactive against disruption. In the next section, we will look at some tax and non-tax incentives that are in place to assist companies with respect to disruption.

Non-tax incentives

The non-tax incentives include the following:

1. Market Readiness Assistance (MRA) Grant
2. Automation Support Package (ASP)
3. Initiatives in New Technology (INTECH) Scheme
4. Research Incentive Scheme for Companies (RISC)
5. Equity Co-Investment Scheme
6. Secondment of experts

Market readiness assistance (MRA) grant

The objective is to accelerate the international expansion of Singapore SMEs, this grant supports pre-determined activities focused on helping companies in overseas set-ups, identification of business partners and overseas market promotion.

Support

- 70 percent of the eligible cost for approved activities, capped at S$20,000 per company per fiscal year
- Maximum of two applications per fiscal year, starting on 1 April and ending on 31 March the following year
- Limited to one activity (e.g. market assessment, market entry, or participation in a trade fair) per application

To Qualify

- Global Headquarter anchored in Singapore
- SMEs with annual turnover of less than S$100 million per annum based on the most recent audited report
- Retrospective applications will not be accepted (Trade Fair applications may be accepted).

For more information

https://www.iesingapore.gov.sg/-/media/IE-Singapore/Files/Assistance-for-Local-Companies/IE_MRA_Grant_Insert_FA_Oct2016.ashx?la=en

Automation support package (ASP)

The objective is to allow companies to tap on a package of grant, tax and loan incentives to defray the cost of large-scale deployment of automation solutions across existing operations.

Support

ASP Components:

- Capability Development Grant (CDG)
  - Local companies can apply to defray the costs of implementing automation solutions.
  - Pilot automation projects
    - The CDG defrays up to 70 percent of qualifying project costs (e.g. consultancy, training, certification and equipment costs) for first-time implementation of automation solutions. This includes mobile ordering applications, self-ordering/payment kiosks and robotic arms for production lines.
  - Full-scale automation projects
    - The CDG has been enhanced to support large-scale deployment of automation solutions. Under the ASP, companies that wish to rollout automation solutions across existing operations may now apply for additional funding support of up to 50 percent of qualifying project costs. A grant support of up to $1 million may be awarded for each qualifying project.
- Investment Allowance
  - Local companies may receive a 100 percent Investment Allowance for automation equipment under ASP.
- Enhanced SME Equipment Loan
  - Local companies may apply for loans of up to S$15 million for automation equipment under ASP.

To Qualify

The deployment of automation solutions should result in a leaner manpower format and significant productivity improvement through:

- Mechanisation of manual operational processes,
- Redesign of existing workflows and processes, and/or
- Adoption of technology that is above the industry norm.
- The ASP does not support the following activities:
- Replacement/upgrade of equipment that does not result in the above outcomes
- Equipment purchase for setting up of new operations, such as production lines or outlet

For more information

https://www.spring.gov.sg/Growing-Business/Packaged-Support/Pages/Automation-Support-Package.aspx

Initiatives in new technologies (INTECH) scheme

The objective is to encourage manpower development in applying new technologies, industrial research and development, and professional know-how within companies or industries. INTECH is specifically for company specific and industry wide projects.

Support

- Company Specific Projects
  - For trainees, the grant is based on fixed quantum per trainee day (t-day) up to a maximum period of 24 months.

- For trainers, grant support is subject to a maximum of 50 percent of allowable costs for start-up training and 70 percent of allowable costs for research and development training. The maximum total grant is S$10,000.00 per trainer per month up to a maximum period of six months.

- For local training projects that involve expatriate trainers, support will be granted either on a fixed quantum per trainee day basis or as a percentage of allowable costs for the expatriate trainer(s) in Singapore.

- Industry Wide Projects
  - Support of up to 70 percent of allowable costs may be given. Equipment and building costs may be supported for projects that benefit the whole industry.

To Qualify

- Singapore-registered firms, companies or organisations are qualified.
- Trainees must be Singapore Citizens or Permanent Residents (PR). In some instances, support under INTECH may be extended to expatriate staff who can transfer know-how or knowledge to Singapore Citizens. Expatriate staff supported should attain PR within 2 years from the completion of training.
- Trainees should be employees of the company or business entity receiving the INTECH grant

For more information

https://www.edb.gov.sg/content/edb/en/why-singapore/ready-to-invest/incentives-for-businesses.html

Research incentive scheme for companies (RISC)

The objective is to award government grants to develop research and development capabilities in strategic areas of technology. Provides co-funding to support the development of strategic technologies, capabilities and the establishment of centers of competence in Singapore.

Support

- 3 years, with possibility of a second tranche of 3 years but at a lower support rate
- Capped at 30 percent of total qualifying local project costs

To Qualify

Project should develop strategic technologies or capabilities.

For more information

https://www.edb.gov.sg/content/edb/en/why-singapore/ready-to-invest/incentives-for-businesses.html

Equity co-investment scheme

The objective is for SPRING SEEDS Capital Pte Ltd (SSC) to provide an equity-based co-financing option for Singapore-based start-ups with innovative products and/or processes with intellectual content and strong growth potential across international markets. SSC is the investment arm of SPRING Singapore and manages the SPRING Start-up Enterprise Development Scheme (SPRING SEEDS)

Support

- For approved deals by the SPRING SEEDS Investment Panel, SSC matches the sum invested by third-party investor(s) dollar-for-dollar up to a maximum of $2 million. The total sum will be invested in tranches, based on identified milestones.

- Both SPRING SEEDS Capital and the third-party investor(s) will then take equity stakes in the company in proportion to their investments.
- Subject to the company's specific progress and performance, additional investments can be considered at a later round for up to $1 million, inclusive of the initial investment.

To Qualify

For applicant:

- Be a Singapore-based company with core activities carried out in Singapore.
- Be incorporated as a Private Limited company for less than five years.
- Have paid-up capital of at least $50,000.
- Be able to evidence substantial innovative and intellectual content for its products and/or services and/or applications.
- Have high growth potential with clear scalability for the international market.
- Have identified a ready, independent third-party investor(s).

For investors:

- The corporate or individual investor(s) must not have prior interest in the company at the point of application and must be independent and objective.
- The corporate investor(s) must be legal entities with a minimum paid-up capital of $500,000.
- The investor(s) must also be able to contribute to the startup's growth. The investor(s) should possess the management experience, relevant business contacts and/or necessary technical expertise that can value add to the startup.

- The investor(s) must be willing to take up a Board seat in the startup, should the investment be supported by SSC.
- The investor(s) must be prepared to invest at least $75,000 each into the business and conduct due diligence on the company.

For more information

https://www.spring.gov.sg/Nurturing-Startups/SEEDS/Pages/spring-start-up-enterprise-development-scheme.aspx

Secondment of experts

The objective is for growing enterprises through Technology Upgrade (GET-Up), an A*STAR initiative. It is a pro-active integrated approach aimed at boosting the global competitiveness of local technology-intensive enterprises to equip them for the knowledge-based economy.

Support

Technology for Enterprise Capability Upgrading (T-Up) - a multi-agency effort which involves seconding Research Scientists and Engineers to local enterprises for up to two years. T-Up is open to local enterprises with at least 30 percent local shareholding, and are committed to undertaking R&D or innovative projects to upgrade their capabilities.

Operation and Technology Road-mapping (OTR) - provides the “big” picture view of the technology required to meet various business and market needs. Financial co-support will also be provided to eligible companies.

For more information

https://www.a-star.edu.sg/simtech/industry/technology-upgrade-get-up.aspx

Tax Incentives

The tax incentives include the following:

1. Pioneer Incentive

2. Development and Expansion Incentive

3. Land Intensification Allowance (LIA)

4. Writing-down allowance for IP acquisition

5. Approved royalties Incentive

Pioneer Incentive

The objective is to allow a pioneer enterprise or pioneer service company to claim capital allowances upon expiry of its tax relief period during the basis period for any year of assessment.

Support

The Minister for Trade and Industry may approve any qualifying company to be a pioneer enterprise or pioneer service company. Upon approval, the company will enjoy a tax relief period not exceeding 15 years. During the tax relief period, income derived by the company from the pioneer trade will be exempt from tax.

For more information

https://www.iras.gov.sg/irashome/uploadedFiles/IRASHome/e-Tax_Guides/etaxguide_CT_PI_CA%20upon%20expiry%20of%20tax%20relief%20period_2014_08_29.pdf

Development and expansion incentive

The objective is to enable the income and direct expenses of the two trades or businesses to be recorded accurately for tax purposes

Support

The Development and Expansion Incentive provides a reduced corporate tax rate of 5 percent or 10 percent on incremental income from qualifying activities for a specified period of time. Applicants are required to submit plans for substantive commitments in manufacturing or growing leading-edge activities or capabilities in Singapore. Factors of consideration also include the significance of the proposed investment to the development of the industries in Singapore, contributions to the growth of research and development and innovation capabilities, as well as potential spin-off to the rest of the economy.

For more information

https://www.edb.gov.sg/content/edb/en/why-singapore/ready-to-invest/incentives-for-businesses.html

Land intensification allowance (LIA)

The objective is to support enhanced land productivity among industrial users. LIA is available to businesses in industry sectors that have large land takes and low gross plot ratios. To encourage co-location of activities and allow a more efficient value supply chain, the LIA was enhanced during the 2016 budget.

Support

Initial allowance (IA)

IA comprising 25 percent of qualifying capital expenditure will be granted in the year of assessment relating to the basis period in which the capital expenditure is incurred.

Annual allowance (AA)

AA comprising 5 percent of qualifying capital expenditure will be granted upon the completion of the construction or renovation/ extension works, as long as all the qualifying conditions are met. If the "minimum floor area" requirement is not met at the end of any basis period, AA will not be granted for that year of assessment.

For more information

https://www.iras.gov.sg/irashome/Businesses/Companies/Working-out-Corporate-Income-Taxes/Claiming-Allowances/Land-Intensification-Allowance--LIA-/

Writing-down allowance for IP acquisitions

The objective is to enhance Singapore's attractiveness as an international intellectual property holding location, writing-down allowances are granted on capital expenditure incurred in acquiring intellectual property rights (IPRs) under Section 19B of the Income Tax Act.

Support

Prior to year of assessment 2017, writing-down allowances will be granted to the transferee on a straight-line basis over a 5-year period on the capital expenditure incurred in acquiring the IPRs.

With effect from year of assessment 2017, companies will be allowed to make an irrecoverable election to claim the writing-down allowances over a 5, 10 or 15-year period (on a straight line basis) on capital expenditure incurred in acquiring the IPR.

For more information

https://www.iras.gov.sg/IRASHome/Businesses/Companies/Working-out-Corporate-Income-Taxes/Claiming-Allowances/Writing-Down-Allowances-for-Intellectual-Property-Rights/

Approved royalties incentive

The objective is to encourage companies to access cutting-edge technology and know-how for substantive activities in Singapore. Under the scheme, tax exemption or a concessionary tax rate may be granted on approved royalties, technical assistance fees or contributions to research and development costs made to a non-tax- resident for providing cutting-edge technology and know-how to a company for the purpose of its substantive activities in Singapore.

Support

Qualifed companies will be taxed on the lower of: amount of royalties after allowable deductions; or 10 percent of the gross royalties. The tax concession does not apply to royalties or payment received for any work published in any newspaper or periodical. Also, it will no longer apply to approved intellectual property or approved innovation from the Year of Assessment 2017.

For more information

https://www.iras.gov.sg/IRASHome/Individuals/Locals/Working-Out-Your-Taxes/What-is-Taxable-What-is-Not/Royalty/

Conclusion

In this age of digital disruption, businesses in all industries are experiencing changes in their competitive environments that result from the use of digital technologies by new market entrants or established companies. With such uncertain economic times and increased competition, Singapore companies should strive to invest in enablers such as training and information technology to raise the level of innovation and digital proficiency.

The Singapore government has taken the lead in responding to digital disruption by providing assistance schemes and grants to local companies to raise their level of market readiness and automation in order to improve competitiveness and business growth. However, government efforts will be futile if Singapore companies do not participate actively and fail to make responding to digital disruption a top priority.

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